

# COMPUTER

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Philips P-350 Series computer

## P-305 Computer Systems Make Their Debut in U.S.

**NEW YORK** Starting at \$175 month, the P-350 family system is now available in the U.S. from North American Philips Corp.

Capable of essentially multi-programming the P-350 permits the use of up to 16 peripheral devices including cards, readers, punches, paper tape, and magnetic ledger and equipment.

The series, consisting of the P-351, 352, 353, works in a fashion similar to that used with the Burroughs L2000. Programs are developed and stored in a

read-only memory, but can be altered by the user. An assembly language is provided for use in creating new programs or modifying existing programs. The unit's main memory is used only for data and active program storage.

The memory holds 300 16-bit words and is expandable to 1,200 words. All programming is done through direct machine words. There are no wired boards, the company says.

Four I/O channels permit operation of up to four peripherals at maximum rated speed, permit-

ting the company says, simultaneous operation of several functions, such as billing, inventory and ledger processing. The unit's 1.3-sec cycle time, the unit is converted, the company says, to be the fastest in its price range.

The unit offers both a complete alphanumeric and a complete numeric keyboard for input and dual-printer output. The card reader can read up to 270 cards/min, and the paper tape units operate at 50 char/sec.

Arithmetic functions are parallel, permitting four simultaneous operations in the central processor. The average execution time for the typical 3-address instruction is about 1.5 msec, the company claims.

The unit rents from \$175/month and sales prices range from \$7,500 to about \$50,000, depending upon desired peripherals and other options.

The unit has been marketed in Europe since early this year. Systems for U.S. delivery are being manufactured at the company's facilities in New York City.

## DataStation Corp. Sues Service Bureau Corp. For Charging 'Unreasonably Low' Time Rates

By Joseph Huxton

**LOS ANGELES** Service Bureau Corp. (SBC) is being sued for \$1,200,000 for an alleged violation of federal antitrust laws. DataStation Corp. charges that SBC, an IBM subsidiary, leased IBM 7094 time early last year at "unreasonably low" rates with the intention of damaging DataStation. SBC denies the charges.

SBC must file its reply by Nov. 10, and a hearing is scheduled for Dec. 1. DataStation charges that in October 1988, SBC withdrew its 7094 time in service in Southern California. In December 1987, DataStation charges SBC "retroactively" took departed work, now cost Model 7094 only in service in Southern California. SBC then offered time on the machine at rates lower than any offered in the United States at any time while at the same time maintaining published

prices for Model 7094 time substantially higher in other parts of the United States.

Specifically, DataStation charges that in December 1987 SBC leased blocks of time to McLehenny Douglas and Northrop at "unreasonably low" prices with the intention of damaging DataStation.

### First Filed Last Year

DataStation filed its first suit July 26, 1988. In that suit both IBM and SBC were named defendants. IBM asked for summary judgment dismissing the complaint against it. DataStation did not oppose the judgment, and it was granted May 13, 1989. DataStation then filed its amended complaint Sept. 12, 1989. SBC is defending.

To prove that SBC was competing unfairly, in violation of the Sherman and Clayton acts, DataStation must show that SBC was attempting to monopolize some segment of interstate com-

merce. DataStation charges that SBC "acted pursuant to a 'scheme' the purpose of which was to monopolize... the leasing of computer time in Southern California, and to the cost and to receive the monopoly of its parent IBM in computers."

### Selling Time Local

In its reply to the initial complaint, SBC denied all of the charges, and further argued that "the business of selling computer time is entirely local in character," and is not interstate commerce.

In a further reply filed this year, SBC argued that DataStation had failed to show that SBC "already occupies a monopoly position in that practice." employed state a "dangerous probability of monopolization." The reply concludes that "there is no allegation that defendant's alleged conduct... the interstate sale of computer time at unrea-

sonably low prices—had a substantial effect on the interstate aspects of the business" of DataStation or SBC's customers.

In its reply so far, SBC has not discussed the specific charge of selling IBM time at unreasonably low prices.

(Continued on Page 3)

## Congress Asked to Probe Computer Billing Systems

**WASHINGTON, D.C.** The anguished cries of people who can't get computers to correct mistakes in their bills are being heard here.

Maryland has passed a law which penalizes creditors who fail to answer a consumer's letter "in clear and definitive terms" within 60 days, and a congressman has called for an investigation of the collection practices of the nation's credit card companies.

### Harassment Cited

Citing complaints of "harassment and even threatening letters" caused by computerized "Rep. Dan Rostenkowski (R-Ill.)" called for an investigation by the House Committee on Interstate and Foreign Commerce. He asked that the committee, of which he is a member, investigate not only collection practices, but also the practice of mailing out large blocks of credit cards, unsolicited, to prospective customers.

"Certainly these companies have every right to collect the accounts that are owed them," the congressman said. "But they do not have the right to browbeat and intimidate their customers. They do not have the right to compound their own errors by threatening to jeopard-

ize a customer's credit reputation while ignoring the customers' attempt to correct the errors."

Rostenkowski charges that rather than being programmed for courtesy, the computers are programmed to get progressively nastier no matter what the person being billed does.

His action was based on complaints from constituents, his own staff, and other congressmen. Also, he noted that the Washington Star's "Action Line" column "has complaints about this sort of thing twice a week." Investigative hearings must be authorized by the House Rules Committee. (Continued on Page 4)

## Software on the Hit Parade?

## Data Stored on 'Phonograph Records'

**NEW YORK** The latest "joke box hit" may soon be a software package or a list of lost credit cards.

A new, low cost, read-only data storage device uses 7, 10, and 12-in. "phonograph records" pressed from a master. Either ASCII or BCD data can be stored.

The records are called Data-platters and information is retrieved by putting them in a Dataplayer. Access time ranges from 2 to 10 seconds, according to the developer, EG&G Inc. of Bedford, Mass. The Dataplayer arm has a random access control which can locate the beginning

of a block of data. Information is read with a stylus.

The Dataplayers come in single-record models and "joke box" changers which can access up to 100 Dataplatters, the company said. They can be used with small or mini-computers or with terminals as off-line retrieval systems, according to the company.

Possible storage uses include semi-permanent data bases, software, and lookup tables. After the master is made, pressing cost only about \$0 to 60 cents per copy, EG&G said, and software houses and computer manufacturers could supply manu-

factories on the disks.

A 7-in. disk holds 625,000 8-bit ASCII characters. A 10-in. disk holds 1.25 million characters, and a 12-in. disk holds 2.5 million characters on each side, the company said.

While the system is primarily being marketed to original equipment manufacturers, end users who already have some of the units could buy direct for about \$2,000, EG&G said. The read-out rate is 16 kilobits/sec. Bit-serial, including clock signal, the company said, considerably faster than paper tape units. Data transfer can also be in parallel mode.

## On the Inside

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## Mini-Computers Are Seen as Boon to Small Businesses

PHOENIX, Ariz. — Mini-computers promise to rescue thousands of businessmen from the high costs and shortages of office labor, and the growing complexity of office procedures, according to Raymond A. Zack, vice-president of Motorola Inc. He believes small-scale computers will become as common in business offices during the 1970s as copying and duplicating machines are today.

"Mini-computers can be especially helpful in the many repetitive, yet important, tasks faced by all enterprises," he said. "Order taking, for example. Every time sales information is received, rewritten, typed, filed, and billed, there is room for error, and significant costs are involved. A mini-computer can do this job faster, cheaper, and

more accurately than it's being done today."

A mini-computer is generally defined as a digital data processor with limited memory and capacity, costing less than \$25,000, he said. It can't do the complex jobs of the giant computers, but thousands of businesses don't need and can't afford huge data processors, he said.

With a mini-computer, such as the \$6,900 one made by Motorola, you can process records, make marketing and sales analyses, and provide instant answers to a host of management information problems, said Zack, who is also general manager of Motorola's Control Systems division.

"Mini-computers are erasing

the concept that the benefits of computers must fall only to the universities and large corporations that can afford them," Zack said.

Educational and health records

processing, marketing and sales analysis, subscription services, and the more practical aspects of management information systems are made to order for the small computer, according to

Zack. "Even last wills and testaments and other legal documents brimming with stereotyped information lend themselves to processing by the small computer."

## International Software Conference Held

ROME — Proposals for an International Institute for Computer Science are being discussed at a North Atlantic Treaty Organization (Nato) conference here this week.

The five-day conference on "Techniques in Software Engineering" is scheduled to end Oct. 31.

The international institute, specializing in software engineering, was proposed by the Nato Sci-

ence Committee. F.M. Blake of the National Physical Laboratory, Teddington, Middlesex, England, was named to develop the proposal.

Blake noted that the institute "if it is established, is unlikely to be a Nato institute. The major part of the funding resources, etc. will come from participating nations, and these nations need not be members of the Nato alliance."

Blake declined to make any other comments on the institute, saying that "at this stage in its development it would be imprudent of me to comment more."

## World Simulation Proposal Brings Many Inquiries

LA JOLLA, Calif. — At least some people are taking John McLeod seriously.

Recently McLeod proposed a computer simulation of the world [CW, Sept. 24]. He conceded that such a project would take more than his lifetime, but argued that work must begin immediately. Only with computers, he explained, can we understand the complex interrelations of the world's problems.

At that time, McLeod mentioned a by-invitation-only meeting that he planned during the Fall Joint Computer Conference. Response was good enough that he has "hired a hall" and is inviting the general public, but with strings attached.

The condition for admittance to the meeting, McLeod said, is that each person must bring a "short position paper" covering the following areas:

- ☐ Work or other "experience" that serves to interest the person in the World Simulation.
- ☐ Recommendations for immediate and then long-term action.
- ☐ Suggested contributions that the person might make to the World Simulation.
- ☐ Thoughts on funding.

The meeting is scheduled for 2:30 p.m. Wednesday, Nov. 19, in the Americana East Room of the Frontier Hotel in Las Vegas.

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NCI Chicago says.

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10. Other \_\_\_\_\_



Model 1603 microfilm printer is discussed by D. James Guzy, Memorex vice-president and general manager of the Equipment Group; Clifford B. Akers, manager of engineering for microfilm printers; and Laurence L. Spitters, president and chairman of Memorex.

## New 10,000-Line/Min Microfilm Printer Can Replace IBM S/360 On-Line Printer

SANTA CLARA, Calif. — Available for about \$1,000 for a complete system, a new microfilm printer will operate on the selector channel of an IBM 360 at about 10,000 lines per minute (the speed of a mid-range tape drive), according to Memorex Corp., which is marketing the unit.

For an additional \$95 per month, it is possible to produce electrostatic copies of the output at 15 seconds each and about 3 cents per page. No high-speed film-to-paper unit has been announced by Memorex yet, but such units are available from other manufacturers.

Offered for delivery early next year, according to the company, the Model 1603 microfilm printer should allow users to reduce the load on their system printers.

The only problem presented is converting the microfilm into useful material. Viewers rent for between \$15 and \$20 per month each, thus bringing the full cost for the normal system, with about 10 viewers, to about \$1,410 per month, including the duplicator, which rents for \$150 per month.

Considering the need for a selector channel, the device could present certain limitations for many potential users. The device, if driven at its nominal 30,000 characters per second, would completely saturate a low-speed selector channel, thus reducing total system output for two-channel systems such as the 360/30.

It would relieve the bottleneck in larger systems with three or more high speed selector channels, such as the 360/50, by freeing the system from constant waits for the printer to catch up.

The unit combines fiber optics with the ability of certain diodes to produce controllable light flashes, to generate characters. The unit produces microfilm output at ten times the speed of

a printer for only three times the total system cost.

### Compatibility

The 1603 is completely compatible with the multiplexer or selector channels of the 360 and is completely software compatible with the standard IBM 1403 and 1443 printers, Memorex said.

Deliveries are scheduled for the first quarter of next year from the company's plant here at 1180 Shulman Ave.

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# Peripheral Storage Devices Available for IBM 1130

With the number of 1130s (both installed and on order) reported to exceed 10,000, many manufacturing firms have entered this market. More disk drives, controllers, printers, tape drives, and telecommunications devices have been announced for this system than have been announced for any other computer in its price range over the past two years. The most recent crop

of announcements seems to be aimed at the peripheral storage of data and includes tapes, disks, and faster I/O channels.

## Disk File

Intercomp has announced an 1130/Access Disk Storage System that will permit the company says, random access of data sets up to 50 million characters in size, with an average access

time of about 40 msec.

The system consists of a controller and one to five IBM 2311 disk drives. The company claims that compilations occur up to 30% faster; assemblies, up to 45% faster; sorts, up to 80% faster; and loads, up to 115% faster.

The system, available from the company's offices at 243 Vasar St., Cambridge, Mass., is priced at about half the price of the 360/30, according to the company.

## Tape Drives

Two new tape drives have been introduced by Infotec, Inc. The TS-1130B, which offers nine-track read/write at 4,000 characters per second, is priced at about \$7,200. The unit will accept up to a 6-1/2 in. reel, and operates at 5 in./sec.

The TS-1130C operates at 15 in./sec. or 20,000 char/sec, and writes either seven- or nine-track tape. Prices for this model start at about \$11,720 for the first tape station, and increase about \$6,000 for each additional station.

The company, based at 70

Newtown Rd., Plainview, N.Y., guarantees to supply all operating software and complete maintenance to make these units operable with normal 1130 I/O routines. Rental as well as purchase plans are available for both models.

## On-Line Controller

Real-time applications can now, according to the developer of LIJON, be run with the 1130. Logicon Corp., manufacturer of the Logicon I/O network (LI/ON), says that its device will permit users to attach many different peripherals to the 1130 system, including ASR-33 Teletypes, and Selectric-type terminals.

Such devices can be connected on either a remote or local on-line basis, permitting both data collection and inquiry processing to be executed.

Complete support, software is

included, the company says. The units are being manufactured at the company's headquarters at 225 W. 5th St., San Pedro, Calif.

## Interface

An interface device specifically aimed at the data acquisition user has been developed by Paragon Systems, Inc. (a subsidiary of Scientific Resources Corp.). The device, known as the Comp. Ex Interface, permits the support of up to 32 additional devices for input or output with the 1130. Types of devices possible include terminals as well as other computers, the company says.

The system, operating on the cyclo-test principle used for higher-speed peripherals throughout the 1130 system, is available for 90-day delivery from the company's headquarters at 2803 Buffalo Speedway, Houston, Texas.

## Nortec Offers Mini-Line Printer With Changeable Type Font Belt

ASHLAND, Mass. — A mini-line printer is now available for use as a printout device with the minicomputers.

Nortec Computer Devices, which is offering the Nortec 200 impact line printer, says the unit is the first in its series of miniperipherals.

The device is suited for remote terminal stations because it is only slightly larger than an electric typewriter, says the company.

The Nortec 200 uses a flexible, easily changed, metal font belt instead of a drum; stored energy frictionless hammer; and a matrix hammer drive circuit, according to the firm.

Operational features include: printing speeds of 200 line/min, 132 columns, and 64 alphanumeric characters, the company says.

The standard line spacing in the Nortec 200 is 6 line/in., but



Mini-Line Printer

8 line/in. spacing is available. A company who buys in quantities of 200 or more may purchase the line printer at \$6,000 per complete unit. A single unit is priced at \$9,800.

In large quantities the company says it will assume systems and maintenance responsibilities; Nortec also will back up maintenance with service training and documentation, the firm says.

Delivery is set at three months. Nortec Computer Devices Inc. is located at 94 Nickerson Road.



I/O Network



Infotec

## REQUEST FOR QUOTATION

### EASTERN IOWA COMMUNITY COLLEGE 1823 State Street Bettendorf, Iowa 52722

Quotations will be received by the Board of Directors of Eastern Iowa Community College up to 7 o'clock P.M., C.S.T., November 24, 1969 at the office of the Secretary, 1823 State Street, Bettendorf, Iowa, at which time quotations will be opened and read aloud, in accordance with the conditions and specifications for:

QUANTITY	MODEL	DESCRIPTION
1	C8225C	Central Processor with 24,000 character core memory includes console and output typewriter BCD Package — includes decimal add, subtract, 3 way compare & 96 index registers
1	J225A	Card Reader, 400 cpm
1	D225B	Card Punch, 100 cpm with OPBC detection
1	E225K	High Speed Printer and Controller, 900 lpm
1	P225A	Magnetic Tape Controller
2	MTH680	Magnetic Tape Unit (15K in BCD & 21.6K in decimal)
1	M225B	Disk Storage Controller
1	DSF204	Disk Storage Unit (4,700,000 characters)

All conditions, specifications and bidders blanks are inseparable parts of the proposal for bids, and anything applicable contained therein must be considered a part of the bidding blanks.

Bidders blanks and any additional information relative to the bid may be obtained at the business office, 1823 State Street, Bettendorf, Iowa 52722, phone 319-355-4763.

For technical information on the equipment, bidders may contact L. Stone, DP Program, 601 West Second Street, Des Moines, Iowa, phone 319-326-4401.

The Board reserves the right to accept or reject any or all bids and to waive any irregularities in any bid.

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## Editorials

### Regulation Needed

Credit bureau files often are incomplete and outdated. The average person can see his file only with difficulty, and often only after it has done him harm.

Credit bureaus are successfully stalling off adequate regulation by citing what they call the excessive costs and difficulty such regulation would create for them.

Computers may provide the answer.

Credit bureaus record the filing of lawsuits but not their disposition, the taking out of a loan but not its payment, the referral of a bill to a collection agency but not its settlement. Credit and jobs have been refused based on such incomplete information. It would cost too much to update all this information, cry the credit bureaus. And they may be right — now.

Computerization at the source of this information can solve the incompleteness problem. When court records are computerized, it will be inexpensive and easy to print weekly lists of all judgments, dismissals, appeals, etc. Where bank loan records are computerized, it would be easy to program the computer to prepare a weekly printout of all loans paid in full, during that week. Update sheets could also be provided on bills given to collection agencies.

Credit bureaus could then be required to use the update sheets within one week to correct their own files. If the credit bureaus were also computerized, these updates could be provided on tape, and the correction could be done automatically.

#### Contents of File

The real danger of errors or inaccuracies is that the person rarely knows that they are in his file. To find out what is in his file, he must actually go to the credit bureau. Usually this is done only after a derogatory item has harmed him.

The obvious suggestion is to send a copy of every report made to the person involved. The disorganized state of credit bureau files, the use of code in the files, and the fact that most reports are made over the telephone all now make this impractical.

But when the information is stored in computers, it will be easy to get written reports. Even if the clerk sees only the report on a CRT screen and gives a verbal report over the telephone, it will be simple to have a copy automatically printed and to have it sent to the person on whom the report was made. And the computer could automatically translate the credit bureau code to make the report readable by the layman.

#### Recommendations

Despite cheapness and simplicity, credit bureaus will never adopt these policies voluntarily — they must be required by law. Specifically, we propose the following:

- Computerized credit bureaus must send a copy of the report to the person on whom the report was made, and the reports must be readable by a layman.
- If court records are computerized, weekly updates must be issued, and credit bureaus must use those updates within one week.
- Computerized banks and loan companies who report new loans to credit bureaus must also report when they are paid off.
- Companies with computerized billing systems that report referrals to collection agencies must also report settlements.

Computerization is taking place rapidly, and these laws will require software modifications that are more easily made before than after installation. Therefore, action must be taken promptly. It is not, the credit bureau will begin widespread computer installations and then will argue that it would cost too much to make the required modifications.

### Best Test-Takers Get Jobs, Actual Ability Not Evaluated

I have been following your series of articles on black trainees quite closely having been a degreeless, female trainee myself. I find your observations applicable to both white and black program trainees without degrees.

From my own experience, I find the biggest factor of personnel departments is their battery of tests for program applicants. Before entering programming school I took IBM's Pat and received a grade of "B". One year and five Pat's later, I received a grade the personnel department said I couldn't be graded. "A+++", they told me.

On one occasion a group of students from my programming class applied at an employment agency for a specific job in programming. One of the applicants, who I knew was more qualified for the position than I, was not even considered because of his low score on one of the preliminary tests, while I, who had taken the same type of test before, scored high enough to be allowed to take the next group of tests. (Which, by the way, was Pat).

I don't think making students better test takers is the answer to helping programming trainees find jobs. Rather, personnel's evaluation of a trainee should be on the basis of programming knowledge, rather than their ability to take tests.

Mrs. Ronald Duke  
Computer Programmer

Minneapolis, Minn.

### Why Don't Usable Manuals Come With Computer Services?

I have enjoyed reading your newspaper although I am a computer professional. I am a secretary and my major association with the computer is through the time-sharing terminal; however, it is in this case that I would like to make a few comments that hopefully would be printed. If the letter is printed, please, may I remain anonymous. I still need my job.

The sales pitch for using the X Company time-sharing system sold my boss, my line, and me. Of course, X had their training director demonstrate how easy it was to use their system with their reference manual.

So, we bought X's package, and I was given the course on how to use it for our job. For a time, all went well.

When the boss asked for a revised procedure, I came close to being fired in the confusion that followed. I was saved by the fact that one of our "key" men couldn't figure out immediately from X's manual how to use the "precious" black box either.

The training director was called. After several days delay, we were given a quick demonstration on how easy it was to set up our new procedure. But, nowhere, was there an explanation in the "sensational" time-sharing manual on how to make the simple change.

Computers may be better and faster than they were a few years ago, but the manuals don't tell how to use them!

Why don't decent usable manuals come with the computer?

Susie Secretary

### Public Needs to Be Educated About the Uses of Data Banks

It disturbed me very greatly to read in the Oct. 8 issue of CW that, in a talk concerning data bases, the director of the computer center at the National Bureau of Standards, Dr. Grosch, feels that only a small minority of people have any real concern over such issues as invasion of privacy.

Before a representative sampling could truly reflect people's concern over invasion of privacy, it would take educating the populace on the methods and control or lack of control of data collection, and the potential misuses of a data bank, which are many, as well as the benefits derived from one.

Unfortunately, this is a task that I don't believe will ever be done. In the past, we as a nation have run head on into too many things, without

thoroughly thinking them through. Let's not do it again.

C.N. Antich

Systems Programmer/Analyst

Haverly Systems, Inc.  
Denville, N.J.

### Data Bank for Migrant Children Must Have Some Safeguards

Recently [CW, Aug. 20] you published an article concerning one Robert Miller, director of the Data Bank for Migrant Children. You included several quotes from him in the article, in which it was clearly apparent that there were no safeguards on the use of the information on these children, (b) no insurance on competence on the part of people who would enter the information relating to their personalities and "progress" records, and (c) no access restrictions.

Aside from endangering the lives of 300,000 citizens of our country while they are too young to know the difference, Mr. Miller demonstrated, from the comments made in your interview, an appalling ignorance of computing systems and data banks in particular. We must stop this misguided sense. If he really has to lose half a million dollars of our money, can't we in the computer user community somehow insure that at the least the most elementary safeguards are applied to this system?

Robert E. Marzone

Ann Arbor, Mich.

Since that article was published, some safeguards have been added [CW, Oct. 1]. The danger now is that the public will believe these safeguards have made the system secure, which they have not. Ed.

### Standardization Cannot Cure Computer Conversion Problems

I strongly agree with the comments on language standards expressed by Mr. Briggs in the Oct. 8 issue of *Computerworld*. Standardization of programming languages cannot cure the enormous problems facing by users who must convert to a new computer.

System Sciences, Inc. has long been aware of the need for an adequate solution of these problems and has developed the Systan system which provides the basis for an interface between existing software and a new compiler. Systan is a table-driven translator which can quickly be set up to convert programs between compilers for similar languages. This capability could lead to the development of a standard interface between any program and any computer thus unlocking the power from a particular computer or computer.

Christopher Gordon

System Sciences, Inc.  
Bethesda, Md.

### Burroughs Defends Differences Between Its Computers, IBM's

In reference to S. Bookbinder's letter [CW, Oct. 8].

Burroughs feels it has something better than Big Data. That's why our systems are not machine language compatible with any other manufacturer (IBM's) capable of building all the 360s the market can absorb — no one else need build them.

There are major differences between our systems and others which we would be happy to discuss at a convenient time with Mr. Bookbinder and others who are not familiar with the Burroughs B3500, B5500, and B6500.

Kent Hucksap

Defense, Space & Special Systems Group  
Burroughs Corp.  
Palo, Pa.

*Computerworld* welcomes comments from its readers. Preference will be given to letters of 250 words or less. *Computerworld* reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, *Computerworld*, 197 Washington St., Newton, Mass. 02160.



## But Data Rates Still Rise

# Bell May Modify Communications Policy

By Ronald A. Frank

**Communications Editor**  
NEW YORK — The American Telephone and Telegraph Co. may slowly be coming to the realization that it can no longer provide all services to all users.

The AT&T announcement that it will no longer oppose a satellite communications system may well have been the first of a series of more conciliatory statements designed to acknowledge competitive non-AT&T services. One key phrase in the AT&T statement combining "incentive for creative private initiative" together with development of domestic satellites marks a sweeping departure from previous positions taken by the company. As a case in point, AT&T recently told the Federal Communications Commission that the need for private microwave communications, such as the network being planned by Microwave Communications Inc., could have a "detrimental effect on the public." MCI, of course, emphatically disagrees.

In line with the apparent new AT&T soft approach, a current ad in the "Phone Is Alive" series appearing in national news magazines points out the features of acoustically coupled devices that allow telephone users to access computers from any remote point with a telephone. Prominently mentioned in the ad are several computer and communications companies that are marketing acoustic couplers in direct competition with the Bell System.

Although the acknowledgment of competitive common carriers and manufacturers

marks a significant departure for AT&T, other recent developments indicate a continuing hard-line attitude toward users.

In this regard AT&T has applied to the FCC for large rate increases on its Telapak communications lines. Telapak rates are for private-line facilities designed for high-volume business and government users utilizing varied communications modes. Officially Bell has told the FCC that the proposed increases would add \$64 million to its annual revenue, but current users feel the impact may be considerably higher.

Some industry observers feel that AT&T actually may be

heeding its own advice, since it has previously told the FCC that its first obligation is to its 110-million telephone subscribers. If, in fact, Bell decides to de-emphasize its services such as data communications, the company's recent request for an increase of total profits to "8.5% to 9%" may mean that the company is willing to condone competition in the area of communications in return for an improved profit position.

If this proves to be accurate, computer users of data communications may find that alternative non-Bell data facilities will become increasingly more attractive.

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## Strassberg To Attend Meeting

**NEW YORK** — Communications experts will discuss the growing crisis in data communications during a two-day conference to be held Nov. 9-11.

Among those attending will be Bernard Strassberg, chief of the Common Carrier Bureau of the Federal Communications Commission.

Among the topics to be covered at the conference are: federal regulations; common carrier and the EDP/data communications community; new tariffs; interconnecting; and interconnection and telephone equipment.

Strassberg will participate in a session that will explore whether the original intent of the Carterfone decision has been carried out in practice.

In addition further implementation required to secure "competitive benefits for users of telephone lines" will be discussed.

The Carterfone decision paved the way for present regulations permitting the use of foreign attachments on the Bell System telephone network.

The conference will be sponsored by the Digitronics Users Association. Details can be obtained from the group at Box 113, Albertson, N.Y.

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## New Computer Show Planned for Canada

TORONTO — A new industry show has been announced by Industrial and Trade Shows of Canada, a division of Maclean-Hunter Ltd.

Called Canadian Computer Show, the first will be held in the exhibition hall of Place Bonaventure, Montreal, Sept. 14-16, 1970.

"This will be Canada's first annual national exhibition devoted solely to data processing and computing equipment," said Lloyd Haines, ITS general manager.

"It is designed as a marketplace

where the users of this equipment — senior management and operating personnel — can see and compare the latest in hardware, software, supplies and peripheral equipment."

Haines said that the need for a show serving the information processing industry was evident in the rapid increase of computer installations in Canada. Canada's computer population has grown from 502 installations in 1964 to 1,928 in mid-1969, an increase of 284% according to a census compiled by the Information Processing Society of

Canada.

Canadian imports of electronic computers and parts jumped from \$30.3 million in 1964 to \$108.6 million in 1968, a gain of 258%. In the same period, imports of magnetic tape more than tripled from \$3 million to \$10.1 million.

"All indications are that the use of computers will continue to expand at a rapid rate in all areas of business, industry, government, education, science and engineering," said Haines.

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## CalComp Offers Century Series Plot Controller

DAYTON, Ohio — CalComp has a new controller which will interface various CalComp plotters with NCR Century systems. First deliveries are scheduled for January.

The plotters provide means of producing ink-on-paper or microfilm plots of computer output data.

CalComp will market its equipment and software directly to NCR Century computer users.

The first application of a CalComp plotter to an NCR Century computer will be at the Miami Conservancy District headquarters in Dayton, Ohio. The flood-control organization will use the system for mapping rain-fall patterns and topographical features of the Miami River watershed, NCR said.

The controller for the CalComp-NCR hookup, the Model 119, sells for \$9,500. CalComp plotters range in price from \$4,550 to \$70,000.

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## Regulation of Credit Bureaus — Part IV

## How Much Protection Does the Credit-Seeker Need?

By Joseph Hanlon  
CW Staff Writer

BOSTON — "The credit grantor or looks upon a credit bureau report of a delinquent account as a signal to check further," so it is not important to list the final disposition of such an account, William J. Mangan, general manager of the Credit Bureau of Greater Boston, testified in opposition to proposed Massachusetts bureau regulations.

All of the regulations that Mangan opposed were rejected. Only a week bill was passed. But it was one of the first state laws to regulate credit bureaus, and the controversy over the proposed bills will probably be duplicated in other states. This article considers in detail the arguments for and against the rejected Massachusetts bills. Bills that were rejected provided that:

□ A creditor who notifies the credit bureau of a delinquent account must also notify the credit bureau upon full payment of that account.

□ A creditor who reports to a credit bureau a credit sale or loan must also report completion of payment.

Both bills were proposed by state Rep. John J. Finnegan. In support of the first, he noted that very few Boston department stores ever follow up a report of a delinquent account. In particular, they do not even inform the credit bureau if the disputed account is settled in favor of the customer. Furthermore, he charged, such a reference in a credit report often results in automatic refusal of credit.

In support of the second, he said that he had received letters from people who said they were refused credit because a credit manager had looked at the credit report, seen many apparently unpaid debts, had decided that the person was "overextended," and had refused credit without further check, even though the bills in question already had been paid.

## Chilton Corp. to Computerize Greater Boston Credit Bureau

BOSTON — The Credit Bureau of Greater Boston will be computerized by Chilton Corp., probably becoming operational in early 1971.

Chilton has already computerized its Dallas bureau and is converting its newly acquired New Orleans bureau.

### Are Credit Bureau Files Complete?

"Credit grantors... count on the completeness of the credit bureau's files of credit history information. Credit-granting decisions are based on the grantor's confidence that the credit bureau has the information he needs to assess the risk."

— William J. Mangan, general manager of the Credit Bureau of Greater Boston, testifying before the Banks and Banking Committee of the Massachusetts Legislature, April 9, 1969.

"We have no difficulty picking up the filings of these matters [bankruptcies, divorces, attachments, etc.] because they are listed in the various records chronologically. We would like to pick up all dispositions on the same general basis, but it is impossible to do so.... The credit grantor... receives this information with full knowledge that it may or may not have been disposed of."

— Mangan testifying before the Massachusetts Consumers' Council, Oct. 15, 1968.

Mangan denies both charges. In testifying against the two bills, he said, "The credit grantor looks upon a credit bureau report of a delinquent account as a signal to check further" and "the present system is built on exception reporting; payment is assumed unless otherwise noted."

In addition, Mangan argued that the bills "might also cause credit grantors to lower their liability by not reporting information to the credit bureau," thus curtailing the information flow and reducing credit grantors' liability.

Finnegan's response: "Non-sensical credit grantors report for the protection of the consumer. They'll keep doing it."

□ Copies of all credit reports shall be sent to the person reported on.

Currently, "a person does not find out about a derogatory item until after he has been rejected for credit or employed. Under this proposed law, a person would see the credit report at the same time as the prospective creditor or employer and have a better chance to correct erroneous or outdated information before he was rejected."

Increased cost and paperwork are the major objections of the credit bureaus. Most credit reports are made over the telephone, and such a law would require that a special written

report be developed to send to the person reported on. Mangan estimated that this would triple the credit grantor's costs (a telephone inquiry now costs 70 cents in Boston).

Even the sponsor of this bill, George V. Kennedy, conceded that it might be too strong: "I don't want to impose an undue burden on the credit bureau." His new suggestion is that credit bureaus be required to send copies of only those reports containing derogatory items, and he hopes to file a bill to that effect in the near future.

□ Copies of credit reports sent to prospective employers shall be sent to the person reported on.

Since reports to employers are generally written, the problems involved in sending copies of telephone reports do not apply here. Rep. Finnegan declared: "This is a good bill, and it's easy — all it requires is a Xerox." But Mangan used a different argument in opposition to this bill, declaring, "The release of any copy of our formats would weaken the security of our information." He also argued that reports would have to be re-written, because of the use of code, and that sending reports would generate "unnecessary questions."

This was part of the Consumers' Council bill and was dropped from the bill by the Banks and Banking Committee.

□ Credit bureaus would be liable for damages for furnishing erroneous information.

Supporters charge that an error in a credit report can prevent a man from getting a job for months and that he should be compensated for the loss.

Mangan claimed that the present procedure "were the public need and that this proposal is much too harsh." He warned that the bill "would greatly increase our liability for being a party to simple clerical error."

#### Proximate Bill Too

During hearings on the various Massachusetts proposals, there was also discussion of the credit bureau regulations proposed by U.S. Sen. William Proxmire. One section in particular was highly controversial:

□ Credit reporting agencies shall notify any individual if derogatory public record information is entered into his file.

Public record information pri-

marily means legal action: bankruptcies, suits, divorces, attachments, etc. The difficulty is that most credit bureaus report the initial action, but do not follow it up.

Mangan explained: "We have no difficulty picking up filings of these matters because they are listed in the various records chronologically. We would like to pick up all dispositions on the same general basis, but it is impossible to do so. Daily dispositions are not available in a chronological listing. They are posted back to the original filing, and we have no way of knowing which book to go to, let alone which page."

Supporters of this section of

Proxmire's bill feel that few people realize that credit bureaus pick up public record information. They believe this requirement would result in persons being informed so that they could tell the credit bureau when the matter was settled.

In addition, supporters of the bill note that errors are sometimes made and that information is put in the wrong file, usually because of same or similar names. Sending notification to the person would allow him to correct an error of this sort, they contend.

Mangan argued against the bill, noting that a person who has just had a suit filed against him might view a letter from the credit bureau as additional "harassment." He also cited the cost, and concluded that a person "is going to become aware of this the next time he applies for credit" and that is soon enough.

Not all credit bureaus include public record information. Dr. Harry C. Jordan, chairman of the board of Credit Data Corp., testified before the Proximate subcommittee, "It is our policy to record a legal action only in those places where our records permit us to follow through to judgment. Thus we now show filings in New York City, but not in other parts of the country."

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## amtwt calendar amtwt

Oct. 30-31, Chicago — "How to Buy Computer Software," a seminar offered by International Computer Programs, Inc. Contact: L.A. Welke, ICP, Inc. 2511 E. 46th St., Indianapolis, Ind. 46205.

Nov. 10-12, New York — A seminar directed at programming managers to discuss problems of programming departments and estimating and controlling software projects, given by Advanced Management Research. Also in Chicago, Dec. 8-10 and Jan. 12-14. Contact: Registrar, Advanced Management Research, 280 Park Ave., N.Y. 10017.

Nov. 10-12, New York — Dial-Data Institute's workshop seminar, "Computer Aided Electronic Design." Contact: Steven R. Graham, Seminar Program Manager, Computer Aided Electronic Design, 1001 Watertown St., W. Newton, Mass.

Nov. 17, Las Vegas — The fall meeting of the SEL Users' Group. Contact: A.H. Rosbury, Systems Engineering Laboratories, 6901 W. Sunrise Blvd., P.O. Box 9148, Fort Lauderdale, Fla. 33310.

## Management Problems, Their Solutions Probed at 'Computer Management '69'

MONTVALE, N.J. — The International Federation for Information Processing (Ifip) will hold a major conference, Computer Management '69, in Manchester, England, Dec. 8-10.

The conference, sponsored by the Ifip Administrative Data Processing Group, will feature in-depth coverage of management problems and solutions in the general areas of programming, the systems teams, computer installation, and the computer manager and his organization.

Papers examining past experience and offering solutions will be presented by independent authorities and by installation managers. Proceedings will be

### Societies

made available and are expected to pave the way for further detailed programs in 1970 and 1971.

According to program committee chairman A.R. Butcher of Parsons & Williams, Copenhagen, Denmark, "The problems of management of computer activity are a subject of concern throughout the world. Few computer managers in the fields of systems design, programming, or day-to-day operation can be sure that they are employing the best available methods for directing,

measuring, and controlling the progress of their departments.

"Increased complexity of hardware and software also brings in its wake new difficulties as well as new possibilities.

"We believe the management problems are international and that solutions to them can be achieved on an international basis. We have therefore accepted the responsibility for bringing computer managers together in this conference where these aspects of management can be identified and discussed."

The U.S., one of 23 countries expected to participate, will be represented by the American Federation of Information Processing Societies (Afiaps).

Attendance at the conference will be limited to 250. For further information and registration forms, contact Prof. Malcolm H. Gotterer, Computer Science Dept., Pennsylvania State University, 426 McAllister Bldg., University Park, Pa. 16802.

Ifip, which was officially formed in 1960, is a multinational federation of professional-technical societies, or groups of societies, concerned with information processing.

## Societies Seek Growth in Study Of Simulation

LOS ANGELES — The dissemination of information about simulation applications is the goal of the third annual conference on Applications of Simulation to be held at the International Hotel in Los Angeles on Dec. 8-10.

Sponsored by the American Institute of Industrial Engineers, the ACM, IEEE, Sear, Simulation Council, Inc., and the Institute of Management Sciences, the conference will provide an open forum for discussions and presentations aimed at expanding and improving the quality and quantity of simulation studies.

The conference is divided into 14 technical sessions, a general session, and five workshops. Among the topics to be presented are: simulation tutorial, simulation languages, simulation analysis, manufacturing applications, computer systems, transportation systems, corporate and financial model, job-shop scheduling, urban/social systems, data base communications, inventory systems, and engineering models. Featured speakers at the two luncheons will be Prof. Richard Bellman from the University of Southern California and Dr. H.V. Liden from C.O. & B.O. Railroad.

Additional information can be obtained from the general chairman of the conference, Arnold Ockene, Simulation Associates, Inc., 600 N. Broadway, White Plains, N.Y.

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By time-sharing the data from 60 or more keyboard operators simultaneously, significant savings in data station costs of as much as 50% can be achieved. Costs drop to as low as \$4500 per data station for a typical 60 station system. For large data preparation installations, the time-shared input is the only economical way to go.

Data entered into the LC-720 is processed by a small digital computer and stored on an IBM

360-compatible magnetic disc. This provides the advantages of bulk storage, and high-speed random access of data. The problems associated with punched card handling or the mounting, pooling, merging and unmounting of magnetic tape reels are eliminated. All data is conveniently and economically stored in an IBM 3316 disc pack for direct high-speed input to your modern data processing system. Naturally, an IBM 360-compatible magnetic disc is also provided with the system as standard equipment.

The LC-720 KeyDisc System also offers for the first time, data verification requiring one input pass only through the system, in addition to the normal technique of verification requiring two different operators. Record size is infinitely variable by each operator from 1 to 120 characters long and the system stores a library of 30 or more different format control programs, all available simultaneously to any and all operators.

### LC-720 KeyDisc System

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To arrange for a demonstration, contact Gary Tischler, Director of Marketing (201) 334-3713

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## Wall Street installs "smarter" data terminals that reduce message errors 90%



Perhaps nowhere in the business world is the demand for error-free communication systems more acute than in the brokerage industry. A new type of *programmable* data terminal from SYCOR is helping satisfy this demand. Each one contains a mini-computer which can be custom programmed to match its intended use. These "smarter" terminals are able to take over a lot of the thinking expected of keyboard operators using conventional equipment. For example, they provide automatic message formatting, display of messages with a single keystroke, and automatic error-checking. Each step is displayed on a video screen where it can

be electronically edited. The simplified keyboard is designed to be used by personnel who specialize in duties other than operating terminals. The terminal can be programmed to replace a model 28 or 33 teletype, and IBM 1050 or other existing terminals *without* changing your system.

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R. W. Ferguson (4434)

October 29, 1969

Page 15

## 'Heur's' Permits a 360/30 to Run Seven Printers

BOSTON — A system that is claimed to save the user between \$2,000 and \$5,000 per month with only a limited implementation, known as Heur's, has been announced by Heuristic Concepts, Inc. at the

State Street Bank and Trust Co., the initial user.

The system enables a computer as small as a Model 360/25 or 30 to operate seven simultaneous printers or other peripheral devices under the Disk Operating

System (DOS). This system appears to be one of the first commercial software packages to make use of the recently announced DOS Multi-Tasking capability, allowing up to seven subtasks to be attached in any

one partition.

The bank announced that it had put its purchased 360/30 (among the ten or twelve computers in use there) to work as a printing controller for the several 360/40s and 50s generating in the output.

Under the current workload, according to Bradford S. Tripp, vice-president, the bank could save from \$2,000 to \$5,000 per month, just using the 360/30 with Heur's. Further expansion to other computers and additional printers on fewer machines would entail additional savings, he continued.

### Technical Requirements

The system operates with a resident 3K control program, and requires an additional 7K for each function performed. Many functions are available, including card-to-tape, card-to-print, card-to-card, file scanning, tape dump, tape-to-print, volume labeling, load UCS buffers, and accounting purge (for the system accounting information file). Also included for the

\$15,000 purchase price is a macro language and coding convention that will allow the user to develop additional programs that can function in the multi-task environment.

Heur's/1 provides its own logical I/O, and it is claimed to improve operating efficiency and error handling. The company says that Heur's/1 has actually operated five printers simultaneously, at top speed, while performing some processing in the background — and still was able to extinguish the Wait Light on the console.

Altogether, 18 utility programs are included with the purchase price, as well as the source deck, the entire listings of the utility programs and their documentation, and some support and training time.

Heur's/1 is available through the company's management consulting and software division, located in Salt Lake City, Utah, in Suite 888 of the Kennecott Building.

## Why Is Conversion Such a Problem? Management Orientation Can Help

By Peter L. Briggs

CW Software Editor

Whenever a user is told by his friendly computer salesman (no doubt with the best of intentions) that the only real solution to his problem is an upgrade to the manufacturer's newest family of advanced computer systems, the user is put in a quandary.

If he decides to upgrade his computer system solely on the salesman's recommendation, he may be jeopardizing not only his own position but his company's future data processing capability.

Although this seems like an extreme statement, reports from many users who are going, have gone, or plan to convert their systems indicated that conversion is a very serious undertaking. No single executive or salesman could possibly be made aware of all potential problems inherent in deciding to convert to a new system.

### The Problem's Scope

To place the conversion problem into proper perspective, it is necessary to examine the nature of the problem.

Certainly, the basic problems of personnel retraining and recruitment, new technology, new languages, new operating environments, new system thinking, and new ways of talking about the computer and its uses are important. But, how about company management? Isn't it apt to be affected? No conversion has ever gone exactly on schedule, and this can have disastrous effects on the overall operation of a company.

Top-level management, therefore, must be prepared. The groundwork must be laid for possible destruction and eventual recovery. Only after this has been done is it fair for the data processing executive to discuss the possible benefits available through the acceptance of this agonizing process.

### Some Problems Solvable

Certainly, solutions do exist for some aspects of the problem. Education, for example, can be handled in many ways. It can be accepted or purchased from the computer manufacturer, it can be obtained from outside consultants, or it can be purchased from carefully selected data processing schools.

### What are the Costs?

These alternatives, and others

The problems of converting or upgrading from one software system to another are well known to those who have experienced them. To these people, we can only offer our sympathy.

But there are many users and middle and upper-level executives who have never lived through a software conversion. This four-part series of articles, which describes the problems of conversion and offers some solutions, is aimed at such people.

that will be discussed later, all entail expense. Where will these expenses develop, and what will the size of the bill be?

Actual dollar and cents prices for the internal changes cannot be developed on a general basis, so this must be done within each company as it considers each possible, possible, guidelines will be presented to indicate the scale of the cost.

Some of the most obvious areas where money must be spent in large quantities are:

- Management planning: a great deal of top management time must be spent in attempting to head off problems and take advantage of new opportunities.

- Training: both for technical and nontechnical personnel — this cost cannot be considered as frivolous — it is too important.
- Internal company procedural revisions and forms redesign: the high cost of reexamining existing systems and eventually redesigning them.

- Reprogramming. Other related costs would include the conversion of data files into new formats and perhaps the inclusion of new data, the cost of installing new equipment and designing a new computer facility, and the added overtime represented by the time spent on these extra tasks — time not planned for when a person was hired to fulfill specified functions.

Next week's article will deal with each of the specified areas, indicate some of the available solutions and their costs, and delineate the sequence of events that must take place to accomplish a safe conversion.

## 'Map' Plots Fifty Different Types of Possible Corporate Achievement

PASADENA, Calif. — A software package — Management Achievement Profile (Map) has been designed to compare a corporation's annual performance with those of other firms in the same industry group.

Map is a sub-system of the merger and acquisition system, also offered by Economics Computer Systems Inc. The new Map developed from the earlier MAS system. Map has been added to the merger and acquisition system.

By measuring pertinent statistics of the industry group to which a corporation belongs, this package rates 50 different financial measurements. These

50 grades form an achievement profile.

To introduce this new service, Economics is asking companies to send them their latest annual reports. Economics will send a company achievement profile, with appropriate comments in return.

Map runs on any computer which can compile a Fortran program such as the IBM 360/30. It uses Fortran IV with a memory of 20K.

The documented package is available now for \$1,500. Installation is included the company says.

The firm is located at 225 South Los Robles Avenue.

## 'Speedbol' Is Being Sent to Users for Free Trial

WILBRAHAM, Mass. — A shorthand notation system for Cobol programmers is available for national distribution from Pioneer Data Sciences, Inc.

Called Speedbol, the program provides mnemonic abbreviations for the most frequently

used Cobol reserved words. The system is also designed to permit the user to abbreviate his own data and procedure names and to use and remember only those Speedbol abbreviations he desires.

A Speedbol demonstration deck, which will analyze any

Cobol source program, indicating where Speedbol shorthand can be substituted, is available from Pioneer Data at no cost.

Speedbol is priced at \$3.00. The company address is P.O. Box 236, here.

## Improved 'GPSS' Permits On-Line Fortran Analysis

WHITE PLAINS, N.Y. — An enhanced version of the General Purpose Simulation System/GPSS (GPSS) has been developed by IBM.

GPSS is a program used for constructing, testing, and evaluating mathematical models of complex systems in areas such as management and engineering. A real-time timer facility for model interruption and continuation of the GPSS/360 Version 2 will allow the simulation process to be suspended at any pre-specified time. The program will print out a complete report, including the model's status.

Another feature of the new version allows for interfacing with independently compiled Fortran routines. Users can run Fortran programs during a simulation.

## Multiple - File Usage and Better Code are Improved 'Score' Features

NEW YORK — Multi-file error extraction and the use of the Sort verb are the two most recent enhancements added to the Score report-generating package from Programming Methods, Inc.

Available for the S/360, the Spectra 70, the Univac 1108,

Additional enhancements of Version 1 include an execution time core-resident PRIC/TRACE/HELP feature and an optional procedure for bypassing redundant listing.

The program is written in assembler language. The DOS version with a 360/30 runs on 64K, the OS version with a 360/40 runs on 131K of core. GPSS runs on any machine from the 360/30 on up.

Documentation is provided in a Preliminary Applications Manual.

GPSS/360 Version 2, which is compatible with GPSS/360 Version 1, will be available in November at a monthly charge of \$20 under a license agreement.

IBM is located at 112 East Post Road here.

and the Burroughs 5500, Score III allows the user to extract information from two files in order to prepare a specific report or perform any other permitted job. Score III is available for \$9,500, with the price including installation, training, and the first year's maintenance.

Score is a language that allows users to specify, in some simple manner, the type, kind, and quantity of information desired for a given report, and to produce the necessary Cobol source program to implement the report request.

In addition, the company says, Score can compile and execute the program directly, without the need for an additional compilation step.

**poor reading habits.**





# WHY PEOPLE KEEP BUYING INTO A VANISHING BUSINESS.

Since the soothsayers first told us the unit record business was finished it has become fashionable to speak of it in the past tense. Fashion is one thing. The demand for economical data processing is another.

Despite what the tea leaves have said, it takes a service force of 1,000 to keep our customers happy. In the last eight months we processed 1,300 machines at our reconditioning plant.

That hardly sounds like rushing into extinction, and it isn't. But then, the unit record business is used to being called passé. Fifteen years ago the IBM 650 and the 705 were introduced and punched card equipment

was supposed to slip quietly into the Smithsonian.

Now it's the System/3 and the hot shots are saying our only chance is to replace the abacus in Chinese laundries.

The unit record business has changed all right. But *changed* is not *gone*. At last count, there were over 40,000 unit record installations in this country. Punched card consumption goes up every year. Many companies, large and small, still rely entirely on punched card equipment for economical data processing. Others have found the machines serve well for back-up, and

computer editing. Much as the IBM 1401 (remember when that vanished?) is now being used in conjunction with more sophisticated computers.

And if you think the only people left in the unit record business are the brokers, you might get in touch with one of our sales representatives. He will

assess your data processing requirements and recommend the

right machines to do the job. You can rent them short or long term. Or you can buy them. Or both. However you choose to do it, we can save you money on any combination you want.

Then we back it up with a service agreement. That's why we maintain round-the-clock customer service offices in over 50 locations. And a 50,000-square foot reconditioning plant in King of Prussia, Pa. And an inventory of 16,000 unit record parts.

True, we're not likely to upstage those dazzling new computers. But meanwhile people have

all that work to get out. They want automatic data processing at reasonable prices. They want good advice, good equipment and good service. And that keeps us pretty busy. It takes a lot of hard work to run a vanishing business.



- ☐ Please send me your new unit record brochure.  
☐ I would like to discuss my data processing needs.

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## Dave Young says, "Operating costs can be reduced with Brandon RMS!"

But that's only one of 12 major user benefits.

RMS is the new software package developed by Brandon Applied Systems. It plans, schedules, and controls equipment and personnel resources in EDP installations.

We'd like to tell you about the 11 other advantages of RMS at our regional Technical Briefings. Plan to attend. Simply call Ellen Karker at (212) 757-2100 for reservations, or if you can't attend, request RMS information.

### Schedule of Technical Briefings

- |                            |                              |                        |
|----------------------------|------------------------------|------------------------|
| ● TORONTO<br>November 20   | ● MONTREAL<br>November 25    | ● BOSTON<br>November 4 |
| ● DETROIT<br>November 18   | ● NEW YORK<br>October 30     |                        |
| ● CLEVELAND<br>November 12 | ● PHILADELPHIA<br>November 5 |                        |

BRANDON APPLIED SYSTEMS, INC.  
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### Financial Thinkers/ Writers

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- CW is Looking for Financial Correspondents
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## New Literature

A 12-page booklet from Brandon Applied Systems, Inc. describes the company's resource management system. According to the company, this modular system of applied software plans, schedules, and controls the equipment and personnel resources of data processing. Copies are available from the company at 1700 Broadway, New York, N.Y. 10019.

An illustrated 12-page booklet detailing its 370 optical character recognition system has been issued by CompuScan, Inc. According to the manufacturer, the system can acquire fonts "on-line," directly from the material being scanned. It is also said to convert to computer language such graphical data as infrared spectra, charts, mechanical drawings, signatures, fingerprints, and graphs. The company is located at 125 Fort Lee Road, Leonia, N.J.

Davis Computer Systems, Inc. has released a colorful, 16-page brochure describing profit opportunities opened to business and industrial management by third-generation computers. Entitled "Profits and Computing Experience," the publication is said to include ways of avoiding some commonly encountered pitfalls in computer usage. It also details DCS' applications capabilities in the areas of process control, management science, facilities management, computer systems, time-sharing, and remote batch and on-site data processing. Contact Peter R. Genereaux, Vice-President, Davis Computer Systems, Inc., 280 Park Ave., New York, N.Y. 10017.

A software buyers' guide that seeks to dispel unfavorable impressions about computer software companies as well as offering buying suggestions has been published by Computer Dynamics Inc. Copies of the guide, entitled "What Bugs You About Computer Software Companies" may be obtained by writing to: Marketing Manager, Computer Dynamics, Inc., 1760 Solano Ave., Berkeley, Calif. 94707.

A computer terminal said to combine plotting and typing capabilities in a single mechanism is described in an eight-page brochure. It contains applications information, examples, and a software description. Contact the Typagraph Corp., 7525 Convo Court, San Diego 92111.

The mechanical characteristics and electrical specifications of the Series 7000 disk memory system are available in a two-page bulletin. According to the company, Information Data Systems, Inc., the family of five models may be used for extending core storage, for buffer memory applications, for main storage in special-purpose computer systems, or for an extender of refresh memory. Models range in capacity from 150,000 to 3 million bits. Write for bulletin 10715M, Information Data Systems, 8260 E. Eight Mile Road, Detroit, Mich. 48234.

A new medical billing system has been announced and is described in a bulletin from Executive Computer Systems, Inc. Copies may be obtained from the company at 1211 W. 22nd St., Oak Brook, Ill. 60521.

Electronic Associates, Inc.'s 590 hybrid computing system is the subject of a 16-page brochure available from EAI in West Long Branch, N.J. 07764.

Details and applications information on the LFG-30 general-purpose computer are available from Mutual Computer Systems at 5500 W. 83rd St., Los Angeles, Calif. 90045.

A bulletin (GEA-8870) on GE's Omnitbus family of software packages for the GE-Pac 4020 computer has been issued. Individual bulletins also are available covering the GE direct digital control, the Biceps supervisory control, QPD optimization, and background processing with Preamble IV. Contact General Electric's Process Computer Dept., 2255 W. Desert Cove Road, Phoenix, Ariz. 85029.

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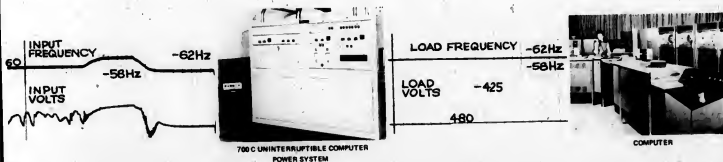
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COMPUTER

## Colleges Collect NSF Funds To Upgrade EDP Facilities

By Kate Rachstein

WASHINGTON, D.C. — Since the Fifties, the National Science Foundation (NSF) has been providing financial assistance to four-year colleges and universities for improved or expanded services in scientific research and education.

According to NSF guidelines for obtaining such aid, "[T]he foundation will be influenced primarily by the demonstrated efforts of an institution to provide for a computing resource as an integral part of its educational process. Equal consideration will be given . . . to both private and public institutions."

Grants of varying sizes are made on the basis of need and merit, as established in

opinions solicited from experts in research and education related to the proposal. In addition, an evaluation team also may visit the applying institution.

Budgets, agreed to by the school, accompany the awards. They specify how the funds should be applied during the grant period for the purposes described in the proposal.

Proposals for grants should be submitted prior to the date that a final commitment to equipment is planned and, if possible, at least six months before the proposed starting date for the grant.

Last year, the foundation awarded funds to 23 schools from a budget totaling about \$6 million. This year's appropriation has yet to come from Congress, but despite decreases in NSF funds in recent years, Senatorial observers do not anticipate further cutbacks.

No funds have been provided for projects at junior colleges to date, although this possibility is being considered, an NSF spokesman said, in light of the growing number of two-year post high school institutions.

Speaking recently at Johns Hopkins University about national policy toward the computer, Dartmouth professor Dr. John G. Kemeny commented that he would like to see the NSF budget increased by \$100 million to fund the support of computer education.

"I predict," he said, "that within a decade the federal government will find this one of its most profitable investments in terms of the vast expansion of the economy and the resulting revenue for the federal government."

Copies of the NSF publication, "Grants for Institutional Computing Services" are available from the agency's Office of Computing Activities in Washington, D.C.

### Education

written proposals submitted to the agency's two-year-old Office of Computing Activities.

Usually covering a three-year period, the funds are most commonly awarded for purchase, rental, and/or amortization of computing equipment; the purchase of computer services; salaries, wages, or other expenses connected with operations; and minor space modifications.

According to the guidelines, proposals should clearly indicate the minimum level of service that will be provided for unsponsored scientific research and education, both during and after the period of the grant. The school's financial plans for meeting this commitment should also be included.

The foundation, the guidelines say, is reluctant to support proposals for which there is little prospect of ultimate stability.

The evaluation process may include

## Student Entrants Vie for Bonds In Annual Programming Contest

CHICAGO — The Association of Educational Data Systems (AEDS) has announced plans for its seventh annual programming contest for elementary and high school students.

Prizes of \$25 in U.S. Savings Bonds will be awarded to winners in seven categories: business, biological science, computer science, games, humanities, mathematics, and physical science. A grand prize winner will be selected from among winners in these categories and will receive an additional \$100 in bonds plus an all-expense-paid trip to the AEDS convention in Miami Beach, Fla.

Projects may be submitted by an individual student or by a team of two or more pupils.

Last year's winner, John O'Donnell of Bates Creek High School in Lexington,

Ky., developed a computer language and compiler called Sigma, which he designed to run on teleprocessing terminals.

Other 1969 entries included projects such as electoral college calculations, comparative computer linguistics, five-card-draw poker, and model rocketry altitude and flight-path predictions.

AEDS is a national organization of administrators, teachers, systems analysts, and programmers of educational data systems. The contest has received the approval of the National Association of Secondary School Principals.

The deadline for entries is April 1. Additional details and application blanks may be obtained by writing AEDS Programming Contest, c/o Mr. Hyman Speck, Loop College, 64 E. Lake St., Chicago, Ill. 60601.

## Computer Compiles Card Catalog For Florida University Library

ORLANDO, Fla. — After two years of data preparation, a computer-based cataloging system for the Florida Technical University (FTU) library became a reality in 40 hours.

Geared to the university's needs, but similar to the machine-readable cataloging system of the Library of Congress, the system will provide students and faculty ready access to information contained in FTU's book collection.

Complete cataloging information for each volume was input to magnetic tape. The school's Honeywell 1200 was programmed to print the information in card

format and to arrange this into four separate files by author, title, subject, and call number.

The cards were printed in filing order, thus eliminating the need for the time-consuming task of arranging and filing.

The continuous printout sheets were cut into individual cards on a high-speed cutter and drilled to accommodate the rods in the catalog trays. In all, 119,000 cards were produced. A similar operation performed manually would have required months to complete.

The system will also keep track of the library's circulation and book-acquisition operations.

COMPUTERWORLD

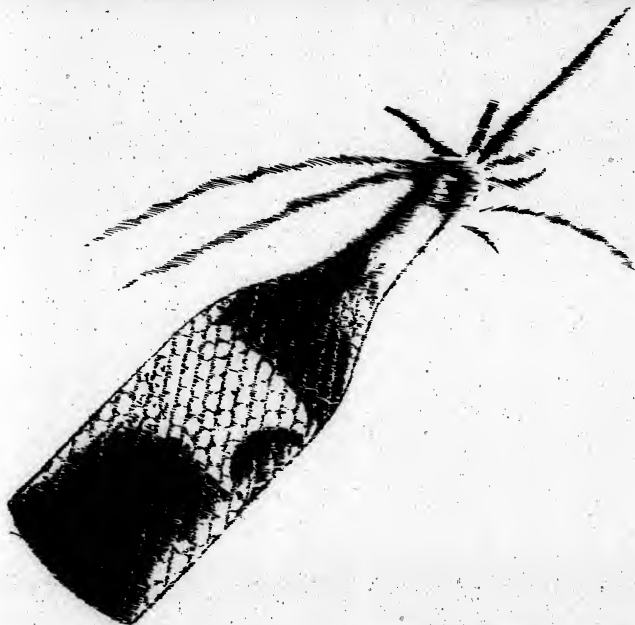


WHY STAND IN LINE?  
SEE PAGE 16

The industry tends to be very blasé about new software products. But once in a while, one comes along that is different from all the rest. And it attracts the curiosity and attention of the real "pros." There is much about it that is fascinating. Mainly because it is so obviously far ahead of the field. Producing benefits that had only been dreamed about by others.

Such a product is WORK TEN. It does so much that has not been done before... yet it is deceptively simple. Like pushing a button or turning a knob and setting off wonderful and exciting events.

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# WORK TEN

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# Amazing Miracle™

Nothing can free your programmers from clerical detail and help them do bigger and better things like Republic's new Cobol program generator.

MIRACL/CPG is a powerful programming system that drastically cuts programming time. Up to thirty Cobol statements are replaced by one MIRACL/CPG statement.

MIRACL/CPG is fully compatible with Cobol. So your programmers don't even have to learn a new language to use it. In fact, programmers use MIRACL/CPG after a few hours of instruction.

Which means your programmers will be free to think about systems and program logic instead of punctuation and syntax.

#### What it does.

MIRACL/CPG helps you generate any Cobol program faster and more easily. Small programs and large. Simple and complex. And you can insert Cobol statements at your option to modify the MIRACL/CPG generated programs.

MIRACL/CPG now makes information systems a reality by simplifying file management and the generation of personalized management reports. An additional feature makes it so easy to write report programs that even non-programmers are using it.

#### What it can do for your programmers.

Basically, it frees them of clerical details. Quickly. It can reduce programming time to minutes. And machine time to a minimum. For example, complete Cobol data divisions are generated with a 70% saving of programmer time. MIRACL/CPG also produces automatic documentation and error checking while generating an errorless Cobol compile the first time.



#### What it can do for you.

MIRACL/CPG will ease your manpower scheduling problems while increasing programmer productivity. It reduces turnaround time. And helps you meet management deadlines.

#### A complete system.

Republic supplies you with all you need to put MIRACL/CPG to work in one day. The software, installation, onsite training, and maintenance. In fact, you even get a "hotline" to Republic's Customer Service Department, to help solve any application problem that might arise.

#### Already proven.

MIRACL was in development and testing for over two years. It was released earlier this year and has since been used by customers to write hundreds of programs. So it's already "debugged." And Republic, one of the major consulting firms in the field, stands behind it.

#### No competition.

MIRACL/CPG offers a combination of important features never before available. Like our ten-file input/output capacity, complete automatic documentation, and full Cobol compatibility. MIRACL/CPG produces more program with less coding.

#### Free demonstration.

We invite comparison. So we'd be delighted to run a free test of MIRACL/CPG for you. At your location. On your work. Once you see it in action, you'll be amazed at its power.

For a further discussion of the MIRACL/CPG system, return the coupon below.

The MIRACL/CPG System by Republic.  
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Operating System _____			

# A candid look at the incredible new



IC-7000 is a brand new, fourth generation interactive time-sharing computer with more core than meets the eye.

This is the first time-share computer to back up a programmable front end with a double back end. In addition to the CPU, the IC-7000 has an exclusive and separate Supervisory Processor. This allows the



time-sharing overhead to be handled in one part of the system while number crunching activities are slammed through the higher speed, optimized areas.

With a 65K-36 bit word core, the IC-7000 has up to 50K available to the user.

File security is available in three levels. The Top Secret level is even impenetrable to the system programmer. No one else has this level of security.

Associative file system. An exclusive retrieval system which allows the user to call into memory with relatively loose, associative addressing. "Get me everything with x, y and z."

Dynamic Time Slicing allows pro-





# time machines.

grammed self modulation of queue times to predetermined optimums. And the IC-7000's terminal flexibility allows hook-ups to CRT, TTY, Selectric, Friden, concentrators and other computers.

With the compiler compiler, users can mix and match FORTRAN and BASIC subroutines within the same program or build their own program language. FORTRAN, BASIC, assembly language and COBOL on the way make the IC-7000 a language-rich machine.

In full set-up, one IC-7000 can handle up to eighty terminals on-line in real time. The same relative properties and advantages are available with somewhat less disk storage and a reduced core.



For complete details and full pricing/leasing schedules, contact Bill Otterson, Vice President of Marketing or call any Standard Computer Sales Office.

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Philadelphia: (215) 563-6350; San Jose: (408) 294-7150;  
Waltham: (617) 891-5063.



All software for the IC-7000 was developed in conjunction with Call-A-Computer, Inc.



## SECURITY

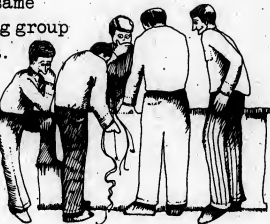
29. ...IN THEIR ENCOUNTERS... THEN MET THE OTHER MAIN POINTS IN VIEW, THE FIRST HAD A HEAVY LOCATION, THE NEXT, A CLAMP WHERE THE INEPT COULD NOT THEN SURROUND THEM, AND THE OTHER OF THEM AFTER AN UNPLEASANT, LONELY...
30. ...TO PRESENT A WARNING FROM INQUIRY OTHERS OR OVERSTANDING THE LOSS AND LINGERS OF ITS COURSE... IT IS NECESSARY TO TAKE CARE THAT THE COM- MANDED DO NOT ACQUIRE TOO GREAT AN AUTHORITY OVER THEIR OWN, NOW, AND INQUIRY OF THIS KIND IS EITHER NATURAL OR ACCIDENTAL, TO GUARD AGAINST THE LONG PREDICTION OF THEM, THAT AN OFFICIAL COULD NOT HAVE ANY COM- MAND OVER THE MEANINGS IN THE DISTRICT WHERE HE WAS NOW, BUT DUE TO COMMENT ONLY THOSE WHO WERE SELECTED FROM PLACES OTHER THAN WHERE HE HAD ANY NATURAL INHERENT CONNECTIONS, TO GUARD AGAINST THE OTHER, IT MAY BE THE BEST THAT HE PRESENTED BY LEAVING THE OFFICERS AND WRITING THEM TO COME IN IN FURTHER PHASES EARLY YET AFTER A LONG CONTINUATION OF COMMAND OVER THE SAME, PEOPLE TO APPLY CRITICALLY TO THE LATTER, BEHIND, VARIOUS THAT MAY BE FIRSTLY CONSIDERED IN THE PREJUDICE OF THE OTHERNESS, (1912)
27. ...I WAS ALWAYS NOT, MY OTHER OF JUSTLY TO THE NATURE OF MY OWN AND THE QUALITY AND NUMBER OF THE ELEMENT, (1912)
28. ...HOW TO LEAVE YOUR OWN IN SECURITY, YOUR CAMP DUE TO BE STAYING AND WELL CHANGING, THE LATTER BEING THE FIRST OF THE LATTER, THE NATURE OF ITS LOCATION, THE LATTER UPON THE COMMANDER'S CARE AND DISCIPLINE, (1912)
29. SOME PHASES WERE NOT IMMEDIATELY SENT AN ORDER TO OPPOSE THE FIRST WHEN THEIR PRESENTATION HAD BEEN MADE, BUT WAS AN INDICTION THAT THE COM- MAND A COUNTRY, AND THE UNLATTERING SENT TO RETURN AND RETURN HIMSELF, (1912)
30. OF ECCLESIASTICAL PRINCIPALITIES, THEN ARE ACCORDING EITHER BY ANTIETY OR BY FUNDING, BUT ARE, REMAINED WITHOUT FUNDING, FOR THEY ARE SUSTAINED BY INHERENT RELIGIOUS CONCEPTIONS, WHICH ARE NOT PROFITABLE, AND OF SUCH QUALITY, THAT THEY KEEP THEM PRESENTED IN PLACE IN ANOTHER MANNER, THEN PRESENTED AND LIVE, (1912)

A portion of a page of the Casyndeckan Machiavelli displays six information items from the texts under the concept "Security."

### Your formula for multiplexer savings:

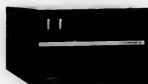
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TTC-2000 offers superior performance at a low price. Multiplexes 2 to 38 channels. Individual channel lights show system traffic. Flip a switch and you verify the availability of channels.

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You pay less for these Tel-Tech multiplexers when you buy or lease them, less when you add channels, much less for spare parts. You can intermix data speeds connected to any terminal... and choose from a host of industry-first options. Equally important, delivery is quick and after-sales service is alert and responsive.

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# Literary Concepts Sorted Rationally Using Computer

By Christine Magnuson

CW Staff Writer

COLORADO SPRINGS, Colo. — Can a machine think?

Using a process that has been 17 years in the making, Casyndeckan Inc., a management advisory firm and data base compilation company, utilizes a computer to deal with concepts.

The first subjects to be analyzed with the process were two works of Machiavelli, *The Prince* and *The Art of War*. The end result: a conceptual index covering 116 information items grouped under 27 conceptual categories.

The Casyndeckan Machiavelli conceptual index is designed to be a tool for the political scientist or historian by which he can easily identify the concepts relevant to a specific area of study.

## Applications

How does Casyndeckan develop a conceptual index? Three experts in a particular discipline pick major information items (sentences from the text conveying meanings) and the conceptual categories.

A conceptual-Boolean logic is used to assign concepts to a grid. The manually prepared information items are stored on one axis of a matrix. The grid is stored on the other axis of the matrix.

"The process is nothing but a postal sorting box except that it works conceptually," said Charles M. Bowling, president of Casyndeckan Inc. The computer sorts the information items into the conceptual categories on the grid, he said. "A gross simulation of the human process" has been achieved, according to Bowling. The computer has tied data and concepts together in a rational way, reducing research and tabulation to a one-step process, he said.

The computers used for the conceptual process are Burroughs 3500 and 5500 systems with software in both Cobol and Algol.

The works of Clausewitz, the military theorist, and Shakespeare are now being analyzed by Casyndeckan, and a series on business management is planned, the firm says.

The conceptual method can be applied to any discipline, a company spokesman said. For example, it could be used in science, finance, marketing, journalism, and engineering. Bowling said that his firm could take the subject of cancer research and build a data base on it.

The compiling of information items and the determining of the concepts, done by experts, is the only subjective part of the process. Accuracy of 98% is claimed, said George Olson, systems analyst for Casyndeckan.

Casyndeckan recently received a request to analyze conceptually the work of a Spanish writer. The company claims that it can do the required analysis with a computer in twenty minutes, whereas a scholar would have to spend about two years on a similar study.

Casyndeckan Inc. (catalyst synthesis definition and analysis) has offices at the Chase Stone Center, Holly Sugar Bldg., Suite 1050, here.

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Fingerprint analysts will retrieve and compare fingerprints by television with the Videofile information system.

## Law Enforcement Records Handled With Videofile Information System

REDWOOD CITY, Calif. — A \$5.6-million Videofile information system to automate and speed handling of law enforcement records will be installed in 1970 by the Los Angeles County Sheriff's Department.

The Videofile system is the key element in a unique countywide television system designed to increase efficiency and reduce costs of law enforcement record keeping, reports Ampex Corp.

The total program is called the optimum record automation for court and law enforcement (Oracle).

Using the Videofile system, case records, fingerprints, photographs, and related documents will be recorded on video tape and made immediately available for viewing as television pictures at the Hall of Justice and 15 sheriff's facilities throughout the county.

The Videofile system combines television and computer technologies to automate handling of visual records. It combines file compression with rapid access from remote locations and flexibility for updating.

The Oracle program will: reduce record-keeping costs; shorten the average time required to locate and retrieve case reports, fingerprints, and related documents; speed the positive identification of arrestees at the outlying sheriff's facilities; and compress file space for paper records.

The Videofile system will include a central system located in the Hall of Justice and document filing and retrieval equipment at the 15 outlying sheriff's facilities. The facilities will be equipped with filing consoles and television monitors in varying combinations.

A sheriff's facility will be able to enter case reports, fingerprints, and other law enforcement documents into the master file remotely or to retrieve documents from the master file as television images in minutes, Ampex claims.

The Oracle program was developed by the Los Angeles County Sheriff's Department and Ampex following an investigation into the needs of law enforcement.

"The Videofile information system is expected to make major contributions to the efficiency of law enforcement in future applications throughout the world," William E. Roberts, Ampex president, said.

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## Service Companies Listings for Home Buyers and Brokers

COLUMBIA, S.C. — A computerized real estate service that aims to assist home buyers; companies relocating employees; and real estate firms, is helping to ease the housing shortage.

The Computa-Home division of Consultronics Institute, Inc. is now operating in 11 metropolitan centers in a three-state area, and the company plans to expand its services into a nationwide network.

Using an IBM 360/40 with internally developed software, Computa-Home implements local real estate brokers by compiling both buy and sell listings at its data processing center here. Listings are sent to the center by Computa-Home franchisees that receive the data from local brokers. The franchise locations use Mowhawk Data Systems communications terminals to transmit listings via Watts phone lines to the processing center.

In addition to serving real estate brokers, the Computa-Home system also helps companies to relocate employees by providing information on available real estate based on the requirements of the potential buyer.

When an executive plans to relocate to a new area, he fills out a form detailing the type of house and geographic environment that he will require in his new location.

The Computa-Home service provides the executives with an opportunity to describe in detail the home he really wants and to receive printout descriptions of the homes available that most closely match the 20 characteristics he has specified. Along with the home descriptions and the names of listing agents, he receives photographs of the homes and community information. Thus he and his family learn something of the character of their new city and the homes available before a first visit. Choices are made and agents whose names appear on the listings are contacted, saving the individual and his company time and money.

October 29, 1969

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## Computer-Speed Humans

NEW YORK—A sharp drop in costly errors contained in messages exchanged with the floors of the New York and American Stock Exchanges has been reported by Loeb-Rhoades & Co. Using a new securities terminal manufactured by Syvor, Inc., of Ann Arbor, Mich., the brokerage house hopes that the reduction in errors can cut the man hours necessary to cope with the heavy paperwork load.

The "programmable video terminal" has message formats custom-built into memory. It is claimed to cut the number of keystrokes in half by use of stored messages and destination codes. Its programmed instruction permits the operator to concentrate upon the content of each message, rather than its format.

## Rockwell Report Viewpoint

## Brokerages' Main Problem Is People

By Elaine Corwin

Special to Computerworld  
The Rockwell Report, [C.W. Oct. 18, 22] in its recommendations to brokerage houses, calls for development of on-line editing of orders, together with order matching and maintenance of customer accounts on a computer file.

This is valid from the point of view of reducing paperwork but opens up major problems in the area of data processing.

A brokerage house must now determine how it can provide a computer system that can handle these recommendations. The suggested system is one that is equivalent in scope to a sophisticated and complex computerized airline reservations system.

In order to be successful, a firm must be able to provide three "major resources"—money, management, and technical ability.

On Wall Street money seems to be the least of the problems. Many firms will have to double their computing budget and will do so without too much difficulty.

There are a few firms who have a marginal data processing operation and the increased cost of high speed equipment, communication line, backup com-

puters, and software development would strain their finances, but in general the money is there for whatever equipment and service is required.

### People Are the Problem

Managerial talent, which is hard to find in any field, is scarce in most brokerage houses. Very few data processing managers have successfully implemented a large scale computer system without help from software firms or hardware manufacturers.

Technical talent—people with the ability to design and implement real-time switching systems coupled with an information retrieval system—is also in demand everywhere. This capability seems to be concentrated more in software houses and with computer manufacturers than on Wall Street.

With a shortage of two of the three required resources, it is clear that each brokerage house will have a difficult time attempting to develop this kind of system independently and a joint effort seems inevitable.

The Rockwell Report suggests one approach that calls for putting together a Member Firm System Advisory organization. This group would have a permanent staff and would co-

## Honeywell Revenue Gains 6%, Rapid EDP Growth Continues

MINNEAPOLIS—Honeywell Inc. had a 6% gain in revenues and a 22% increase in earnings per share for the three months ended Sept. 30.

Third-quarter revenues of the worldwide automation company reached a record \$338.4 million, compared with \$318.6 million a year ago.

Earnings were \$13.7 million or 90 cents per share on common stock, against \$11 million or 74 cents a share in the same 1968 period.

Worldwide sales for the first nine months of 1969 rose to \$1,009.8 million from \$913.1 million in the first three quarters of 1968, a 10.6% increase. Nine-month earnings were up 29% to \$2.65 a share from \$2.06 a share, with net income equalling \$39.8 million this year against \$30.6 million a year ago.

James H. Binger, first chairman, said Honeywell's first-half growth continued in the third quarter in all areas of the company's business except aerospace and defense equipment, which also were down.

"The most rapid growth continued to occur in our computer and communications business," he said.

"As we had predicted," Binger said, "The third-quarter rate of growth in sales was somewhat slower than in the first half, but the earnings gain continued to

outpace sales increase, reflecting an improvement in overall profit margins."

"The rapid growth of our computer business demonstrates that our broad product lines have good acceptance in the marketplace," Binger claimed, adding that orders, shipments and backlogs of computer and communications equipment "were all substantially up from a year ago."

During the third quarter, he indicated, outright sales of computers continued to run slightly ahead of the same 1968 period, but most of the growth in computer revenues came from rental income.

Shipments and backlogs of industrial-control systems were up, both in the United States and

abroad. "We are modestly optimistic about continued growth in this area of business," he said, "but we are somewhat uncertain about the course of capital spending."

The comparative decline in aerospace and defense sales in the last three months reflects a strong third quarter a year ago. "For the first nine months aerospace and defense sales were about level with a year ago and we expect they will be for the year," he said.

Binger said business outside the U.S. was strong and that real changes in the value of the German mark and the French franc had had no significant impact on the company's financial performance.

## Burroughs Reports Better Results Almost Everywhere

DETROIT—Burroughs reported that indicated net operating earnings for the nine months ended Sept. 30 increased 29% over the 1968 nine-month period.

Ray W. Macdonald, president of Burroughs, reported net operating earnings for the nine-month period were \$30,242,000, which compares with the 1968 net operating earnings of \$23,400,000 for the same period.

Net earnings per share were \$1.82 based on 16,535,606 average shares outstanding, compared with \$1.43 per share last year on 16,414,986 average shares outstanding.

Estimated U.S. and foreign income taxes for the nine months were \$31,980,000, compared with \$23,400,000 in 1968. Revenue for the nine-month period totaled \$517,229,000, a 15% increase compared with \$450,097,000 in the 1968 period.

Third quarter net earnings were

\$9,577,000, a 25% increase over the 1968 third quarter earnings of \$7,654,000.

Revenue for the nine months of 1969 was \$517,229,000, compared with \$450,097,000 in 1968.

Macdonald said that total worldwide incoming orders for the first nine months were 12% above the same period last year. Commercial product orders showed an increase of 20% over the same period last year. Orders for government custom products declined 42% from last year's nine-month position.

Orders for commercial electronic data processing products were 37% ahead of the nine-month position in 1968.

Macdonald further indicated that total worldwide backlogs are currently 22% greater than they were at the beginning of the year.

## NCR's Earnings Jump 14%, Sharpest Growth in EDP

NEW YORK Consolidated net income of the National Cash Register Co. during the first nine months of 1969 showed an increase of 14%, rising to \$27,377,000 from the \$24,039,000 recorded in the comparable period of last year.

Total worldwide revenues were \$878,573,000 compared with \$797,987,000, or a 10% increase. Both earnings and revenues were new records for nine-month period.

The earnings amounted to \$2.57 a share on 10,648,400 shares (the average number of shares outstanding in 1969) vs. \$2.43 a share on the average

number of shares outstanding last year.

Robert S. Oelmann, NCR chairman, said, "All major segments of the company are in this strength although electronic data processing equipment and data center revenue are showing the sharpest growth rates."

Oelmann said the earnings figures for both 1969 and 1968 included results of the recently acquiring Combined Paper Mills, Inc., which have been accounted for on a pooling-of-interests basis.

Incoming equipment orders for the year to date have been exceptionally strong, the NCR chairman said.

## Contracts

Sunlighting Systems Inc. has contracted with Computer Conversions, Inc. for the design and implementation of a total integrated system for managing all of the administrative functions of the franchisor of lamp and shade centers.

Brandon Applied Systems Ltd. has been selected by the Covent Garden Market Authority to examine the feasibility of installing a central computerized accounting system for traders. Traders could use the service either on a service-bureau basis or by operating their own remote I/O terminals.

Under an initial contract of over \$150,000, Tel-Tech Corp. will install over 30 of its data communications multiplexers for the nationwide time-sharing network being implemented by the Westinghouse information systems laboratory, Pittsburgh, Pa. The equipment will allow Westinghouse to offer its present time-sharing and remote-batch services on a nationwide basis. The multiplexers will be installed in Westinghouse service centers in Boston, Chicago, and Philadelphia.

Computer Network Corp. has reached an agreement to develop and operate an on-line computer reservations and invoicing system for a three-year period with International Travel Corp. of Washington. The contract is worth \$400,000.

The Commonwealth of Pennsylvania has awarded a \$5-million contract to Autocode Inc. for the computerization, codification, editing, printing, and distribution of the Pennsylvania administrative regulations. The completed publication, to be called the "Pennsylvania Code," will be stored on computer tape for future information retrieval.

Compute America Corp. (Comerica) has reached an agreement with the Oklahoma School of Banking and Business to establish a large-scale data processing center at OSB&S. Comerica is installing two third-generation computers—an IBM 360 and a Univac 9200 at the Oklahoma City school.

The computer automated cargo documentation (CADC) service of the computer services division of R. Dixon Speer Associates will be used by Sabena World Airlines to handle processing required to clear airway international cargo shipments to their destination.

Sanders Associates, Inc. has received a \$265,530 award from the Defense Documentation Center for a microfiche reproduction and handling system to automate the annual distribution of over 2.3 million microfiche copies of technical and scientific documents on projects sponsored by the Department of Defense.

Fimaco, Inc. has signed a long-term contract with Franklin Square Agency Inc. to perform subscription processing for its education division. Franklin Square primarily handles magazine subscription offers to college students through their book stores.

Autocomp, Inc. will supply text-processing and photo-composition to the American Express Card division for its dining and entertainment directories, and to the Dun & Bradstreet Corp. for its corporate management directories.

Under a \$250,000 contract, Ampex Corp. will supply Model TMZ digital tape memories for use in off-line systems to Data Products Corp. The TMZs will be used in a line of printout stations developed and marketed by Data Products.

Digital Development Corp. has received a contract for DDC 73 rotating digital memory units from the Hagat/Computer Systems division of Westinghouse Electric for use with the Prodac 2000 process control systems.

Under contract to the Southern Pacific Co., McDonnell Automation Co. is developing a computer-aided railway engineering system (Cares) for use by railroads in moving unusual loads and in selecting priorities in construction programs.

## New Registrations

**QUANTUM COMPUTING CORP.**, 165 Hudson St., New York, N.Y. 10014, a company that designs, manufactures, and sells a computer system for use in commercial data processing, filed to register 100,000 shares of common stock. Proceeds, at \$12.50 per share maximum, intended for acquisition of machinery and equipment, development of a marketing system, and general corporate purposes. The underwriter is Invesco Corp.

**NATIONAL SOFTWARE EXCHANGE, INC.**, 300 Park Ave., Great Neck, N.Y. 11021, a company engaged in marketing computer systems and other related activities, filed to register 80,000 shares of common stock. Proceeds, at \$5 per share, intended for initial salaries of additional marketing personnel, expansion of advertising and promotional activities, development of software packages on a contract basis, working capital, and general corporate purposes. The underwriter is Investor Corp., 166-07 Mitchell Ave., Jamaica, N.Y. 11432.

**CONNECTICUT TECHNICAL CORP.**, 3000 Main St., Hartford, Conn., a company engaged in the design, development, and manufacturing of computer peripheral equipment for the computerized graphic arts industry, filed to register 100,000 shares of common stock. Proceeds, at \$7.50 per share, intended for the design and development of new products, repayment of short-term indebtedness, purchase of equipment, marketing programs, working capital, and general corporate purposes. The underwriter is Hill, Thompson, Mead & Co., 70 Wall St., New York, N.Y. 10005.

**SYNERGIST, INC.**, 1000 Bimbal Ave., Beverly, Mass. 01915, a company engaged in the design, development and production of single character (letter) and multi-character (word) and paper tape devices for the production and processing of digital information and processing systems, filed to register 250,000 shares of common stock. Proceeds, at \$12 per share, intended for research and development, manufacturing, and marketing of computer systems and related information services. The underwriter is Savitz, 330 Park Ave., New York, N.Y. 10022.

shares of common stock. Proceeds, at \$12 per share, intended for research and development, manufacturing, and marketing of computer systems and related information services. The underwriter is Savitz, 330 Park Ave., New York, N.Y. 10022.

**ATRON CORP.**, 1256 Trap Road, St. Paul, Minn. 55115, a company engaged in the design, development, manufacture, systems engineering, programming, marketing, and support of digital computer-based systems and subsystems, filed to register 200,000 shares of common stock. Proceeds, at \$6.25 per share during the first five years and \$15 per share during the second five years, intended for manufacturing and inventory, development and operating expenses, capital equipment and leasehold improvements in connection with future expansion of the manufacturing facility, development of regional sales and service centers, and working capital. The underwriter is Ladenburg, Thurnham & Co., 25 Broad St., New York, N.Y. 10004.

**INFORMATION COMPANY OF AMERICA**, 225 S. 15th St., Philadelphia, Pa. 19104, a company that provides proprietary computer services, publishes secondary publications, and provides contract and consulting services in the field of information storage, processing, and retrieval, filed to register 125,000 shares of common stock. Proceeds, at \$7 per share, intended for further development of the company's document preparation service, marketing and initial operation of that service, general corporate purposes, and continued development and marketing of computer systems and related information services. The underwriter is Savitz, 330 Park Ave., New York, N.Y. 10022.

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## COMPUTER STOCKS: TRADING SUMMARY

Week Ended October 17, 1969

[illegible][illegible][illegible]

NCH	1969 CLOSING		PRICE	NCH		1969 CLOSING	
	PRICE	CHANGE		PRICE	CHANGE		
0	14	5	1/8	ADVANCED COM TECH	3	2/8	85.25
0	14	5	1/8	APPLIED DATA RE	3	2/8	85.25
0	15	6	1/8	ARRIS	3	2/8	83.33
0	15	6	1/8	AT&T	3	2/8	83.33
0	16	7	1/8	COMPARATIVE DATA	3	2/8	83.33
0	17	8	1/8	DATA SCIENCES	3	2/8	83.33
0	17	8	1/8	DATA SERVICES	3	2/8	83.33
0	18	9	1/8	DATA SYSTEMS	3	2/8	83.33
0	19	10	1/8	COMPUTER A/R	3	2/8	83.33
0	20	11	1/8	COMPUTER A/R	3	2/8	83.33
0	21	12	1/8	COMPUTER A/R	3	2/8	83.33
0	22	13	1/8	COMPUTER A/R	3	2/8	83.33
0	23	14	1/8	COMPUTER A/R	3	2/8	83.33
0	24	15	1/8	COMPUTER A/R	3	2/8	83.33
0	25	16	1/8	COMPUTER A/R	3	2/8	83.33
0	26	17	1/8	COMPUTER A/R	3	2/8	83.33
0	27	18	1/8	COMPUTER A/R	3	2/8	83.33
0	28	19	1/8	COMPUTER A/R	3	2/8	83.33
0	29	20	1/8	COMPUTER A/R	3	2/8	83.33
0	30	21	1/8	COMPUTER A/R	3	2/8	83.33
0	31	22	1/8	COMPUTER A/R	3	2/8	83.33
0	32	23	1/8	COMPUTER A/R	3	2/8	83.33
0	33	24	1/8	COMPUTER A/R	3	2/8	83.33
0	34	25	1/8	COMPUTER A/R	3	2/8	83.33
0	35	26	1/8	COMPUTER A/R	3	2/8	83.33
0	36	27	1/8	COMPUTER A/R	3	2/8	83.33
0	37	28	1/8	COMPUTER A/R	3	2/8	83.33
0	38	29	1/8	COMPUTER A/R	3	2/8	83.33
0	39	30	1/8	COMPUTER A/R	3	2/8	83.33
0	40	31	1/8	COMPUTER A/R	3	2/8	83.33
0	41	32	1/8	COMPUTER A/R	3	2/8	83.33
0	42	33	1/8	COMPUTER A/R	3	2/8	83.33
0	43	34	1/8	COMPUTER A/R	3	2/8	83.33
0	44	35	1/8	COMPUTER A/R	3	2/8	83.33
0	45	36	1/8	COMPUTER A/R	3	2/8	83.33
0	46	37	1/8	COMPUTER A/R	3	2/8	83.33
0	47	38	1/8	COMPUTER A/R	3	2/8	83.33
0	48	39	1/8	COMPUTER A/R	3	2/8	83.33
0	49	40	1/8	COMPUTER A/R	3	2/8	83.33
0	50	41	1/8	COMPUTER A/R	3	2/8	83.33
0	51	42	1/8	COMPUTER A/R	3	2/8	83.33
0	52	43	1/8	COMPUTER A/R	3	2/8	83.33
0	53	44	1/8	COMPUTER A/R	3	2/8	83.33
0	54	45	1/8	COMPUTER A/R	3	2/8	83.33
0	55	46	1/8	COMPUTER A/R	3	2/8	83.33
0	56	47	1/8	COMPUTER A/R	3	2/8	83.33
0	57	48	1/8	COMPUTER A/R	3	2/8	83.33
0	58	49	1/8	COMPUTER A/R	3	2/8	83.33
0	59	50	1/8	COMPUTER A/R	3	2/8	83.33
0	60	51	1/8	COMPUTER A/R	3	2/8	83.33
0	61	52	1/8	COMPUTER A/R	3	2/8	83.33
0	62	53	1/8	COMPUTER A/R	3	2/8	83.33

[illegible]

## Earnings Reports

URS SYSTEMS CORP.

39 Weeks Ended August

	1969	a
Per Ernd	\$57	
Revenue	19,426,000	15,
Earnings	1,063,000	
Cap Shrs	1,860,000	1,

-Restated to reflect acquis  
 1969 of Kan R. White Co.  
 Research Co. and Madigan  
 ne. on pooling of interest ba

**REDCOR CORP.**

Year Ended June '29

	1969	1968
Hourly Earnings	\$3.30	
Revenue	7,692,000	6,400,000
Earnings	1,185,000	1,000,000
Spec Cred	137,000	100,000

<sup>a</sup>-Based on income before credit, <sup>b</sup>-Adjusted to reflect and common equivalents, <sup>c</sup>-37 cents a share, <sup>d</sup>-From accu-forward.

SCIENTIFIC CONTROL C

Year Ended April 30

	1969	2
Revenue	\$6,930,869	\$3.
Net Loss	1,825,108	

-Restated by company.

### Orders and installations

**Hawkeye Bancorporation Computer Service, Cedar Rapids, Iowa,** will expand capabilities to long-distance data processing with the addition of an NCR 100 system. A century 100 will be installed at the Wayne Savings and Loan Co., Wooster, Ohio, to handle processing of savings, home-improvement loans, and mortgages.

A second CDC 6600 super-scale system has been installed at the World Weather Center, Suitland, Md., by the U.S. Commerce Department's environmental science services administration to process and analyze weather data from hundreds of locations on or over the earth's surface.

A 300,000-pound ICL 1904E is being commissioned in the Basilidon offices of Carreras Ltd. for use in sales order processing. Pert applications, advanced linear programming, and company model applications.

Westinghouse Electric Corp. has received orders for over 100 Prodac 2000s for applications in the automotive, machine tool, electric utility, metals, and petrochemical industries. The first Prodac 2000 was installed at Entrekin Computers Inc., Fenton, Mich., for an application in the automotive industry.

NCR Century computers will be supplied to several more organizations. Maine Medical Center's NCR Century 100 will be used for in-patient accounting, post-discharge accounts receivable, and payroll. Information Services Corp., Durham, N.C., will employ an NCR Century 200 for teaching skill and theory courses in its data processing institute. An NCR Century 100 will be used by United Inns Inc., Memphis, Tenn., for general accounting and payroll for the 18 Holiday Inns the organization operates on a franchise basis and for processing for its chain of car-wash facilities.

**NUCLEAR DATA INC.**

12 Months Ended August

	1969	1968
Earnings	\$2.23	\$2.00
Dividends	2,137,051	1,540,000
Per Share	160,010	117,000
Dividend	.45	.40
Dividend	4,190,571	3,060,000
Dividend	312,086	212,000

**DIGITEK CORP.**

Three Months Ended August

	1969	\$19
Revenue	\$490,000	\$64
Loss	42,000	b4
Year Ended May 31		
Revenue	2,372,151	2.42

ated to reflect four schools  
a pooling-of-interests  
ome.

**DATA TECHNOLOGY CORP.**

Year Ended May 3

	a 1969	b 1968
Ernd	\$66	\$1
Revenue	13,041,504	7,801,100
Earnings	753,893	464,000

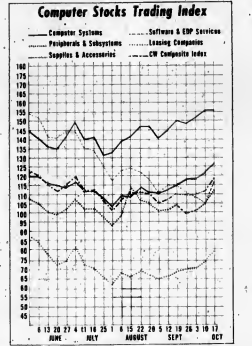
Final report, b-Restated to include results of Perfection Plastics Inc., subsidiaries on a pooling-of-interests for year ended Feb. 29, 1969.

EDP RESOURCES INC.

	1969	1968
Food	10.11	54

Ernd	\$8.11	04
Revenue	2,429,123	526.1
Spec Cred	40,974	432.1
Earnings	84,290	83.4
Based on	749,250	sh
standing	Based on	400

ares outstanding, c-From gain  
urchase by company of its 8-1,  
quipment notes, d-investment  
edits.



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inside  
news.**

**EDP Industry Report**, "the gray sheet", is generally regarded as the most authoritative source of market facts and figures on the \$10 billion-a-year computer industry. Its twice-a-month issues provide subscribers with facts, ideas, and insights on the computer market. Its well-researched contents have enabled it to become one of the most-quoted publications in the EDP field.

**EDP/IR** is published 24 times a year by the International Data Corporation, the largest market data gathering, analysis, and publishing company in the computer and information processing industry. Subscriptions \$75 per year. Free copy of annual *Review and Forecast* issue sent with one-year subscriptions. Write:

**EIDIP** industry report  
Department D-13  
60 Austin Street  
Newtonville, Mass. 02160



## Position Announcements

### MIS PROGRAMMERS SYSTEMS ANALYSTS

Foxboro, international leader in the manufacturing of instrumentation and automatic control systems for process industries, has openings in their MIS operation utilizing an IBM S360 to OS-MVT.

#### Systems Programmers:

We are asking for a minimum of one year's experience in IBM 360 programming and a desire to become a systems programmer. A commercial or scientific oriented college degree is desired. Successful candidates will participate in all phases of operating systems support, development of teleprocessing applications, and support of a growing variety of applications packages.

#### Applications Programmer:

BA BS degree with two to five years' experience in EDP applications programming or equivalent experience. Should have extensive experience in COBOL language for business applications. Some FORTRAN experience would be helpful. Successful candidates will become involved in all areas of business applications.

#### Systems Analysts:

Three to five years' experience in systems design including knowledge of manufacturing, financial & marketing systems. Bachelor's degree or equivalent experience required. Systems experience utilizing the IBM System 360 is also desirable.

Interested candidates should send a resume or detailed letter to Mr. Jay D. Hubson, Professional Placement Office, The Foxboro Company, Dept. C, Neponset Avenue, Foxboro, Mass. 02035. Foxboro is an equal opportunity employer.

**FOXBORO**

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## Spangle Named Executive Vice-President To Head Honeywell's Five-Division CCG

WELLESLEY HILLS, Mass. — C.W. Spangle, vice-president and general manager of Honeywell's electronic data processing division, has been elected a board director, corporate vice-president, and group executive.

He will take over direction of the five-division computer and communications group (CCG), with headquarters in Waltham, Mass.

The promotion was one of a series announced by the company in Minneapolis following a meeting of the board of directors last week. The board broadened the base of top management by electing two executive vice-presidents to share corporate-wide operating responsibilities with the president.

Named to the new posts were Charles L. Davis, who will oversee primarily the firm's computer, communications, aerospace, and defense activities, and Edson W. Spencer, who will oversee the company's building controls, precision components, industrial products, photographic products, and international operations.

Spangle, who succeeds Davis, also was named to the Honeywell board of directors.

Also elected a corporate vice-president was Edward C. Lund, who will share management of CCG with Spangle in the new post of associate group executive.

Davis and Spencer will con-

## EDPeople

tinue to be based at corporate headquarters in Minneapolis, and Spangle and Lund at CCG headquarters at the Waltham, Mass., Honeywell Technology Center. Stephen F. Keating, Honeywell president, said the creation of the two executive vice-presidencies took place as the result of expanded business opportunities that he and Binger foresee for the worldwide automation company in the 1970s.

"Jim Binger and I have given a great deal of thought to the demands that this growth will place on our organization," he continued. "We have concluded that to insure our ability to take advantage of the existing opportunities as well as create new opportunities, we should immediately broaden the base of corporate operating management."

Keating said Davis and Spencer "will share operating responsibilities for the entire company" with him, the three men functioning as a "single, flexible unit."

Davis joined Honeywell in 1955 as manager of research and planning for the then aeronautical division in Minneapolis. He was elected vice-president of what is now the aerospace and

defense group in 1962, and was named head of the computer and communications group upon its formation in 1968. He became a director of the company in 1964.

Born in Orange Bluffs, Fla., Davis earned a bachelor of science degree at Auburn University, after which he served in the U.S. Air Force for 14 years.

Spencer started with Honeywell in 1954 in product marketing at the aeronautical division in Minneapolis. After four years as an administrative assistant in international operations, he became Honeywell's Far East regional manager in Tokyo in 1959.

He returned to Minneapolis in 1964 as director of exports and in 1965 was elected a corporate vice president with responsibilities for all international operations. He was elected a Honeywell director in April, 1969. The Chicago native was graduated from Williams College and was a Rhodes scholar.

Spangle has been vice-president and general manager of the electronic data processing division, Wellesley Hills, Mass., since 1965. Before that he was managing director of Honeywell's British subsidiary, Honeywell Ltd.

Lund has served as vice-president and general manager of the communications and data products division in Minneapolis since its formation in April, 1968.



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### Software Technical Writers

Experienced software technical writers, or programmers who desire to enter this field, are needed to prepare user-oriented manuals, reference manuals, and software specifications.

### Senior Software Designers

Challenging positions are now open for senior software designers experienced with standard operating systems and related product sets. Time sharing experience would also be helpful.

\*\*\*\*\*

TO APPLY, please call or send your resume in confidence to Mr. Floyd Lytle, 6000 Software Development Division, Control Data Corporation, 215 Moffett Park Drive, Sunnyvale, California 94086. Phone 408/734-7181. An equal opportunity employer M/F.

CONTROL DATA  
CORPORATION

To investigate other opportunities nationwide, send resume to: Control Data Corporation, Box 888, Minneapolis, MN 55400.

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## CDC Names Custom Engineering Manager

MINNEAPOLIS — J.D. Kee has been appointed general manager, customer engineering operations, international liaison and special programs of Control Data Corp. In his new position, Kee will have functional responsibility for all overseas and post office customer engineering operations and direct responsibility for military customer engineering, special projects, and small systems support.

Kee, who joined Control Data in 1967 as product line general manager, has most recently held the position of staff general manager, corporate development.

Kee graduated from the University of Wisconsin in 1953, where he received B.S. and M.S. degrees in atmospheric physics.

### Central Data Elects Two Vice-Presidents

CLEVELAND — Robert J. Levenson and Thomas C. Hockman have been elected vice-presidents of Central Data Systems, Inc.

Levenson will have new responsibilities in the areas of marketing and consulting activities while Hockman will continue to serve as director of systems programming.

Levenson joined CDS nearly three years ago after serving as a new business marketing representative for IBM. Prior to that he was a staff accountant with Haskins and Sells, certified public accountants.

He is a graduate of Kent State University.

### Executive Corner

Hockman joined Central Data Systems in April after nine years with IBM. He worked for four years in systems engineering, with special emphasis in the area of scientific applications, and five years in marketing.

Hockman's educational background includes a B.A. from Ohio Wesleyan University and an M.S. in nuclear physics from Cal Tech.

### Daley Made Sales V.P. For World Research

CHICAGO — E. Thomas Daley, a sales and marketing specialist, has been appointed vice-president of sales for World Research Corp.

Daley's immediate objective is to develop a marketing approach for the data processing and management services divisions of WRC. His long-range plans will be to coordinate all sales and marketing efforts for all divisions.

Daley graduated from Marquette University, Milwaukee, Wis., with a B.S. in business administration. He then continued his studies in law until he joined Warnaco in Bridgeport, Conn., as a sales and marketing specialist. In 1967, he became a management consultant for Basic Systems Inc., a division of Xerox and Standard Business Research Inc.

He joined World Research Corp. earlier this year.

### Other Recent Moves

□ David F. Alton has joined Ennis Brandon Computer Services of Dallas as director of marketing.

□ Cybercom Corp., Sunnyvale, Calif., has named Charles L. Gordon as Northern California district sales manager.

□ Leasco Data Processing Equipment Corp. of New York has appointed Carl M. Vordier Bruege vice-president, group executive-computer services.

□ David L. Guerrero has been named to the newly created post of manager, research and planning, for Marketing Systems Inc., Menlo Park, Calif. His major responsibility in this position will be the coordination of the company's resources in seeking and developing new products and markets.

□ Associates Inc. has announced the promotion of F.R. Eubanks to the position of operating vice-president. Eubanks, a cofounder of the Dallas-based computer utilization firm, has served for the past two years as a vice-president and director of data processing.

□ Charles R. Campbell has joined Qantel Corp., San Mateo, Calif., as director of systems development. His responsibilities will include the development of all software, customer support systems, publications, training, and microprogramming.

## Acquisitions

KDI Corp., Cincinnati, Ohio, a diversified organization serving the electronics and other industries, has acquired Adtrel Electronics, Inc., the Philadelphia designers and manufacturers of high-speed photodigital recording equipment. Adtrel, previously privately held, will operate as a part of KDI's computer products and systems group.

Heuristic Concepts, Inc., a computer-oriented congenic corporation, has acquired KJK Associates, Inc., a bank management consulting and executive recruiting firm, in exchange for 124,500 shares of Heuristic stock. The transaction has the approval of the boards of directors.

CompuShare, Inc., a computer service bureau in Arlington, Va., has been purchased by Information Systems Corp. of Washington, D.C., for an undisclosed amount. Information Systems Corp. is a computer-oriented service organization providing the full spectrum of information services.

North Atlantic Industries, Inc. of Plainville, N.Y., and Peripherals General, Inc. of Cherry Hill, N.J., have terminated merger negotiations.

U.S. Systems and Software, Inc. and Ostro Engineering Co., Inc. have entered into negotiations leading to a possible merger.

Abacus, Inc., a Wisconsin firm specializing in an automation school and a medical billing system, has been acquired by Executive Computer Systems, Inc., a total service data processing firm based in Oak Brook, Ill. Financial details of the transaction were not disclosed.

Data Operations, Inc. Cambridge, Mass., a data processing service organization, has acquired Data-Mate, Inc., a computerized data matching bureau, for an undisclosed amount of stock.

Datronix Rental Corp., Chicago, has reached an agreement with Chicago Forwarding Co. to acquire its division, Advanced Data Processing, for cash. Advanced Data provides systems design, software, and bureau processing services.

Computer Controls Corp., Miami, which specializes in on-line, real-time, computer time-sharing for commercial customers, has agreed in principle to acquire National Properties, Inc., Miami, for an undisclosed amount of stock. National Properties is a real estate and utilities holding company.

Data 100 Corp., Minneapolis, manufacturer of computer terminal systems, has announced preliminary agreements to acquire two companies. The agreements with E and M Industries, Inc., manufacturer of com-

ponents for the computer and aerospace industries, involves the issuance of 27,000 shares of Data 100 common stock in exchange for E and M Industries, Inc. assets. The agreement with International Scientific Ltd., manufacturer of computer memory systems and assembler of computer equipment, involves the issuance of 28,200 shares of Data 100 common stock at the closing and possible issuance of additional shares based upon the earnings of International Scientific and the market price of Data 100 common stock over a three-year period.

CCI Corp., Van Nuys, Calif., has acquired controlling interest in Railroad Accessories Corp., a Minneapolis-based manufacturer of railway signal and control equipment.

United Corp., New York, and Hugle Industries, Inc., Sunnyvale, Calif., have reached agreement for acquisition of controlling interest in Hugle by United Corp., a wholly owned subsidiary of United, in a transaction involving approximately \$13.5 million. Hugle Industries manufactures fabrication and assembly equipment for the semiconductor industry.

Strategic Systems Inc., a service oriented firm, has announced its sale of Setab Computer Institute, Inc., a wholly owned subsidiary, to Granite Management Services, Inc. for an undisclosed amount.

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## Time Share Corp. Combines Services in Boston Area

Time Share Corp. has consolidated several of its services by moving into New England Executive Park.

A company spokesman said that the new facility adjoining Route 128 will combine the company's software division with its development and sales divisions.

In addition, a Time Share training center for customers in the Greater Boston area has been established at the new address, Three New England Executive Park.

The company's new quarters are designed to provide "downtown" facilities for the research, office, and manufacturing activities that have grown up along Route 128, a highway ring around Greater Boston.

Time Share Corp. is a developer of programs that enable a wide variety of industrial, academic, technical, and financial organizations to use its computer facilities.

### New Facility for Interlink

Interlink Corp. has established a new operating facility for its Cirtec division and relocated corporate headquarters to 8944 Fullbright Ave. Cirtec, which manufactures printed-circuit and fine-line computer boards, will also continue operations at its present location at 16700 Schoenborn St., Sepulveda, Calif.

Opening of the new facility will increase engineering and manufacturing capabilities, enabling the company to serve more effectively the needs of its customers, who include manufacturers and users of computers, a company spokesman said.

The new plant will permit more rapid development of new products in the fields of flexible printed circuits, strip-line techniques for high-frequency trans-

### Expansions

mission lines, and in the proprietary embossed solder pad process.

### Computers Intercontinental Formed by Occidental Life

Occidental Life Insurance Co. of North Carolina has announced the formation of a new subsidiary, Computers Intercontinental, Inc.

The new subsidiary will provide technical know-how, marketing tools, and personnel training for Time Share Europe, a joint venture with European partners offering timesharing computer services throughout Europe.

The first installation of a computer center will be in November, 1969, in Dusseldorf, Germany, with satellite operations in Frankfurt and Munich.

Additional plans call for operations in Scandinavia, the Benelux countries, and other European locations in early 1970.

Computers Intercontinental is owned by Management Services Corp., a wholly owned subsidiary of Occidental Life Insurance Co. of North Carolina.

### Other Expansions

Curran Computer Corp., Hackensack, N.J., announced the signing of a lease for an additional 2,100-sq-ft space at the company's present location, 946 Main St. Curran Computer has dealt mainly with operating leases, which call for the lease of graphic plotters to clients in industry, government, and education. The expansion will provide space for the installation of a computer and plotting equipment that will simplify the client-instruction program.

## Shortage of Personnel May Delay Development of On-Line Systems

(Continued from Page 29)  
firm to develop the software required to meet their needs. This approach would give all the firms involved equal benefit from the high level technical talent at only a fraction of the cost required to develop the system on their own.

It would also concentrate the

development and design within one firm so that would have the responsibility and authority to produce the product.

Each firm would have less of a requirement for individual management and technical skill.

Since one system would not meet the needs of everyone due to the various sizes and specializations of the firms, more than one joint effort might be undertaken to satisfy several groups.

### Brokers Now in Charge

Wall Street still has quite a distance to go to take full advantage of the computing power presently available to it.

The recommendations in the Rockwell Report gave the brokers some direction in which to go, but it is now the brokers' responsibility to bring their computing effort to the level it has reached in other areas of industry.

What has been done to date has only scratched the surface and now an all out organized approach using qualified computer personnel is the required action.

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